

No. 10280

United States /
Circuit Court of Appeals

For the Ninth Circuit.

LYDELL PECK and ALLAN B. RUDDLE,

Appellants,

vs.

SHELL OIL COMPANY, INCORPORATED, a
corporation, and SHELL DEVELOPMENT
COMPANY, a corporation,

Appellees.

Transcript of Record

In Four Volumes

VOLUME I

Pages 1 to 495

Upon Appeal from the District Court of the United States
for the Northern District of California,
Southern Division

FILED

APR 13 1943

PAUL P. O'BRIEN,
CLERK

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[Clerk's Note: When deemed likely to be of an important nature, errors or doubtful matters appearing in the original certified record are printed literally in italic; and, likewise, cancelled matter appearing in the original certified record is printed and cancelled herein accordingly. When possible, an omission from the text is indicated by printing in italic the two words between which the omission seems to occur.]

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In the United States District Court for the
Northern District of California,
Southern Division

Civil Action No. 21390-R

LYDELL PECK, and ALLAN B. RUDDLE,
Plaintiffs,

vs.

SHELL OIL COMPANY, INCORPORATED, a
corporation, and SHELL DEVELOPMENT
COMPANY, a corporation,
Defendants.

COMPLAINT

Come now plaintiffs above named, and for cause
of action allege:

I.

yes? That plaintiff Lydell Peck is a resident of the
City of Oakland, County of Alameda, State of
California; and that [1*] plaintiff Allan B. Ruddle
is a resident of the City and County of San Fran-
cisco, State of California.

II.

That defendant Shell Oil Company Incorporated
is a corporation organized and existing under the
laws of the Commonwealth of Virginia, and is a
citizen of the Commonwealth of Virginia; that said
defendant has a regular and established place of

*Page numbering appearing at foot of page of original certified
Transcript of Record.

business in the City and County of San Francisco, State of California, and that defendant is engaged in intrastate business in the State of California by reason of repeated and successive transactions. That defendant Shell Development Company is a corporation organized and existing under the laws of the State of Delaware; and that said defendant has a regular and established place of business in the City and County of San Francisco, State of California.

III.

That the jurisdiction of this court is based upon the diversity of citizenship of the parties to this cause, and on the fact that the matter in controversy exceeds, exclusive of interest and costs, the sum or value of Three Thousand Dollars (\$3,000).

IV.

That defendant Shell Oil Company, Incorporated, a Virginia corporation, was originally named "Shell Petroleum Corporation", and that said defendant, by an agreement of merger dated April 1, 1939, acquired all of the assets and liabilities of Shell Oil Company, a California corporation; that in support of the allegations of this paragraph there is annexed hereto, made a part hereof by this reference, and marked "Exhibit A", a certified copy of said Agreement of Merger between Shell Petroleum Corporation, a Virginia corporation, and Shell Oil Company, a California [2] corporation, dated March 27, 1939, effective April 1, 1939, together with certified copies of documents relating thereto.

V.

That prior to the month of January, 1938, plaintiffs, at great expense of time and money, developed a core oil, primarily designed for use in foundry work for the manufacture of casting cores, which said product was given the name by plaintiffs of "Core-Min-Oil". That following extensive laboratory work, development and testing of said "Core-Min-Oil", plaintiffs contacted defendant Shell Oil Company Incorporated, by communicating with said Shell Oil Company, a California corporation, subsequently merged into defendant Shell Oil Company Incorporated, for the purpose and with the intention of attempting to interest said Shell Oil Company in the further development, improvement, manufacture, distribution and sale of plaintiffs' said product for foundry use in the manner aforesaid, and for such other uses as from time to time might appear. That commencing about February 1, 1938, and after a confidential disclosure of said product and demonstration thereof to members of the executive personnel of Shell Oil Company, acting through its affiliated or subsidiary corporation, defendant Shell Development Company, over a period up to and including the latter part of March, 1938, said Shell Oil Company thoroughly investigated, analyzed and tested said "Core-Min-Oil", and verified the representations made by plaintiffs theretofore with regard thereto.

VI.

That upon completion of the testing and investi-

gating period aforesaid, Shell Oil Company, on or about April 1, 1938, submitted to plaintiffs a draft of a proposed contract, wherein and whereby, in substance, Shell Oil Company sought to obtain an [3] exclusive license to operate under three applications for United States Letters Patent theretofore filed by plaintiffs in the United States Patent Office. That after some revision, made at the instance of plaintiffs, said contract was placed in final form and duly executed by plaintiffs and by said Shell Oil Company, a California corporation, the predecessor in interest herein of defendant Shell Oil Company Incorporated, on April 8, 1938. A true copy of said contract is annexed hereto, made a part hereof by this reference, and marked "Exhibit B". *Profer* of an executed duplicate original of said contract Exhibit B is hereby made, the same to be offered in evidence in this proceeding at such time as this court may direct.

VII.

Thereafter, Shell Oil Company, a California corporation, continued working with plaintiffs and their representatives, both directly and through its said affiliate or subsidiary, defendant Shell Development Company, further to test and investigate the disclosures and representations of plaintiffs with reference to said product "Core-Min-Oil", and particularly to investigate the patent situation with regard to "Core-Min-Oil", and said pending applications of plaintiffs for United States Letters

Patent thereon or thereto pertaining; all pursuant to the terms of paragraph 22 of said contract Exhibit B hereto annexed, wherein and whereby said Shell Oil Company was allowed "up to six months from date of receiving copies of the present filed Ruddle applications to investigate the patent situation in regard to Core-Min-Oil."; said paragraph 22 further providing: "In the event Shell Oil considers the patent situation unsatisfactory at or before the end of said six months period, then Shell Oil may terminate this agreement forthwith."

Following the expiration of said six months period, and after three extensions thereof for periods of ten days each, [4] given by plaintiffs to said Shell Oil Company at the request the latter, said Shell Oil Company, under date of November 2, 1938, gave notice to plaintiffs of its election to continue under the terms and provisions of said contract Exhibit B annexed hereto. A true copy said notice, dated November 2, 1938, of election by Shell Oil Company to continue under said contract Exhibit B is hereto annexed, made a part hereof by this reference, and marked "Exhibit C".

VIII.

That following said notice Exhibit C hereto, and until April 1, 1939, said Shell Oil Company, a California corporation, proceeded ostensibly to perform the terms and conditions of said agreement Exhibit B hereto annexed, which said ostensible performance thereof was continued in the same manner

by Shell Oil Company Incorporated, one of the defendants herein, until July 26, 1939, when said defendant, over the signature of L. G. McLaren, its vice president, at San Francisco, California, notified plaintiffs of its election to cancel and terminate said agreement of April 8, 1938, forthwith, and stated that it did, by said letter of July 26, 1939, notify plaintiffs that said contract Exhibit B was "Canceled and terminated". A copy of said letter of July 26, 1939, from defendant Shell Oil Company Incorporated to plaintiffs is annexed hereto and marked "Exhibit D".

IX.

Promptly upon receipt of said letter Exhibit D annexed hereto, plaintiffs replied thereto in the manner set forth in a letter dated July 28, 1939, a copy whereof is hereto annexed, made a part hereof by this reference, and marked "Exhibit E", in which plaintiffs called attention to the fact that they regarded the letter of July 26, 1939, of Shell Oil Company Incorporated to be "of no force or effect", and wherein they stated further: "* * * we therefore stand squarely upon the agreement between your concern [5] and ourselves dated April 8, 1938, and consider the same to be in full force and effect." Whereupon plaintiffs demanded that said defendant "maintain said contract fully and faithfully in all respects."

X.

Subsequently, and on August 18, 1939, defendant

Shell Oil Company Incorporated wrote to plaintiffs a supplement to its letter of July 26, 1939, to which it annexed a group of so-called "reports", purporting to describe some of the activities of defendants and of Shell Oil Company, a California corporation, the merged predecessor in interest of defendant Shell Oil Company Incorporated, during the term of said contract Exhibit B and theretofore. A copy of said letter of defendant Shell Oil Company Incorporated to plaintiffs dated August 18, 1939, together with enclosures, is hereto annexed and marked "Exhibit F", the enclosures being marked respectively "Exhibit F-1" to "Exhibit F-13".

XI.

Thereupon, and in response to said letter Exhibit F hereto annexed, plaintiffs, on September 6, 1939, wrote to defendant Shell Oil Company, Incorporated, reaffirming the demand of plaintiffs that said defendant fully perform the conditions of the contract Exhibit B, and pointing out the fallacy of defendant's contentions, all as set forth in a copy of said letter of September 6, 1939, hereto annexed, made a part hereof by this reference, and marked "Exhibit G".

XII.

In response to said letter Exhibit G, defendant Shell Oil Company Incorporated wrote to plaintiffs under date of September 14, 1939, in the manner set forth in a copy of said letter hereto annexed and marked "Exhibit H", to which last mentioned letter

plaintiffs replied on September 20, 1939, as set forth in a copy of said reply hereto annexed, made a part hereof [6] by this reference, and marked "Exhibit I."

XIII.

That the correspondence between plaintiffs and defendant Shell Oil Company Incorporated closed with the letter of plaintiffs dated September 20, 1939, nothing further being received thereafter by plaintiffs from said defendant despite the fact that, in its letter of September 14, 1939, Exhibit H, said defendant indicated that a further communication was being prepared.

XIV.

That plaintiffs, pursuant to and in reliance upon the contract Exhibit B hereto annexed, disclosed to Shell Oil Company, predecessor of defendant Shell Oil Company Incorporated, upon the express condition that the same be retained in strict confidence, all of the developments, discoveries or inventions of plaintiffs relating to core oils and kindred products, as well as all applications for United States Letters Patent pending therefor or pertaining thereto; and pursuant to said contract Exhibit B plaintiffs authorized and permitted patent counsel for defendants and each of them to continue prosecution of said applications for Letters Patent in the United States Patent Office. In addition, and prior to the execution of the contract Exhibit B hereto annexed, and likewise upon a re-

quirement that the same be maintained in strict secrecy and confidence, and upon a promise by said Shell Oil Company to maintain all disclosures in strict secrecy and confidence and to utilize the same only under and subject to license of plaintiffs, plaintiffs disclosed to Shell Oil Company and to defendant Shell Development Company all developments theretofore made in the art of core oils and related products by plaintiffs.

XV.

That the subject matter of said inventions, discoveries or developments of plaintiffs, as made by plaintiffs both before [7] and after the execution of the contract Exhibit B hereto annexed, have at all times theretofore been preserved and maintained in strict secrecy, and that but for the actions and threatened actions of defendants and each of them, all as hereinafter more particularly set forth, all information pertaining to the discoveries, inventions or developments of plaintiffs pertaining to core oil and related products the exclusive property of plaintiffs, would now be known only to plaintiffs and those in privity with or acting in a privileged capacity with plaintiffs.

XVI.

That said Shell Oil Company, a California corporation, upon becoming merged into defendant Shell Oil Company Incorporated, disclosed to said defendant all data and information of whatsoever nature pertaining to plaintiffs' said developments,

discoveries or inventions. Further, that upon receipt thereof, both before and after the date of execution of said contract Exhibit B hereto annexed, said Shell Oil Company likewise disclosed to defendant Shell Development Company all information of whatsoever nature obtained by said Shell Oil Company from plaintiffs, relating to plaintiffs' said discoveries, inventions or developments.

That therefore and thereby, the defendants and each of them are now fully advised concerning, and are entirely familiar with, plaintiffs' said inventions, discoveries or developments, and with the character and contents of all applications for Letters Patent therefor pending in the United States Patent Office.

XVII.

That defendants, acting jointly and severally, threatened to disclose, and upon information and belief are alleged to have disclosed, to the public in general, portions or all of said confidential disclosures of plaintiffs to said Shell Oil Company and to defendants; and that in the letter Exhibit E hereto annexed, defendants, acting jointly and severally, state that they [8] intend to market for profit and cause to be marketed for profit a core oil which, upon information and belief, plaintiffs allege comprises or includes the discoveries, inventions or developments, or parts thereof, disclosed by plaintiffs to defendants in confidence; all of which plaintiffs allege to be a breach of the confidential rela-

tionship existing between plaintiffs and defendants, unless defendants account therefor to plaintiffs pursuant to the contract Exhibit B hereto annexed.

XVIII.

Plaintiffs aver that defendant Shell Oil Company Incorporated has failed to perform the provisions, and all thereof, of paragraphs 2 and 3 of the contract Exhibit B hereto annexed, by its failure to manufacture, sell and distribute the products the subject of said contract; and that defendant Shell Oil Company Incorporated has thereby breached said contract and particularly said paragraphs 2 and 3 thereof.

XIX.

Plaintiffs aver that defendant Shell Oil Company Incorporated, by failing, neglecting and refusing to perform, after July 26, 1939, the terms and conditions of said contract Exhibit B, despite the provisions of paragraph 15 thereof, which provides that "Shell Oil may terminate this license agreement in the United States at any time after five years from the date" thereof, to wit, at any time after five years from April 8, 1938, has committed, and indicates that it intends to continue to commit a breach of each and every paragraph of said contract Exhibit B calling for performance thereof.

XX.

Plaintiffs further aver that defendant Shell Oil Company Incorporated, by stating, in Exhibit E hereto, that it will at all times refuse to account to

plaintiffs under said contract Exhibit B for products for foundry use allegedly developed [9] by it during the term of said contract, has breached said contract, including paragraph 7 thereof.

XXI.

That defendant Shell Oil Company Incorporated, as set forth in a statement of its commitments and intentions in the letters Exhibits C and F hereto annexed, has refused to account to plaintiffs in any manner whatsoever for royalties accruing under said contract; wherefore, plaintiffs aver that said defendant has breached said agreement Exhibit B, and particularly paragraphs 8 and 10 thereof.

XXII.

Plaintiffs aver that defendant Shell Oil Company Incorporated, by reason of its refusal to render to plaintiffs full and complete information with regard to all products falling within the terms of said contract, and particularly by making the refusal set forth in the letter Exhibit F, has breached said contract Exhibit B annexed hereto, and particularly paragraph 27 thereof.

XXIII.

Plaintiffs allege further that they have fully, faithfully and in timely manner performed all obligations falling upon them, or either of them, under the terms of said agreement of April 8, 1938, Exhibit B hereto annexed; and that plaintiffs have in no manner breached said agreement, nor have they

agreed to or permitted any variation, modification or alteration thereof. Wherefore, plaintiffs aver that said contract is, and at all times since the execution thereof on April 8, 1938, has been, in full force and effect.

XXIV.

Plaintiffs allege that by reason of the breaches, and each and all thereof, aforesaid, plaintiffs have been damaged and injured in an amount in excess One Hundred Thousand Dollars [10] (\$100,000), but the exact amount of said injury plaintiffs can not definitely determine without the aid and assistance of this court.

XXV.

Plaintiffs further aver that they have been and now are being damaged, and are threatened with further damage, by reason of the conduct of defendants hereinbefore recited, and that plaintiffs are without adequate remedy at law and are therefore compelled to seek equitable remedy herein, including an order of this court compelling specific performance of the contract Exhibit B hereto, henceforth, by defendants.

Wherefore, plaintiffs pray that this court grant to plaintiffs relief as follows:

1. A judgment and decree of this court finding that the contract Exhibit B hereto annexed is, and at all times since the execution thereof has been, in full force and effect.

2. A decree of this court compelling specific performance of said contract Exhibit B by defendants

Shell Oil Company, Incorporated, and Shell Development Company.

3. A decree of this court determining that plaintiffs are entitled, under said contract Exhibit B, to receive royalties during the entire term of said contract on all products for foundry use manufactured, used or sold, or caused to be manufactured, used or sold, by defendants.

4. A decree of this court awarding to plaintiffs damages, in an exact amount unknown to plaintiffs but exceeding One Hundred Thousand Dollars (\$100,000), as a result of the numerous breaches of said agreement Exhibit B, all of which are hereinabove recited.

5. A decree of this court ordering an accounting to plaintiffs for royalties due to plaintiffs under said contract Exhibit B hereto annexed.

6. An order of this court awarding to plaintiffs [11] costs and such other, further or different relief as in equity and good conscience this court may deem meet and proper in the premises.

Dated: October 25, 1939.

LYDELL PECK and
ALLAN B. RUDDLE,
Plaintiffs,

By TOWNSEND & HACKLEY
CHARLES E. TOWNSEND
ROY C. HACKLEY, JR.
Their Attorneys. [12]

State of California,
City and County of San Francisco—ss.

Lydell Peck and Allan B. Ruddle, being duly sworn, depose and say that they are the plaintiffs in the above entitled action; that they have read the foregoing Complaint and know the contents thereof; that the same is true of their own knowledge except as to the matters which are therein stated on information and belief, and, as to those matters, that they believe them to be true.

ALLAN B. RUDDLE

LYDELL PECK

Subscribed and sworn to before me this 18th day of October, 1939.

[Seal]

W. W. HEALEY,

Notary Public in and for the City and County of
San Francisco, State of California.

My commission expires Aug. 29/41. [13]

EXHIBIT B

LICENSE AGREEMENT

This agreement made as of the 8th day of April, 1938, by and between Lydell Peck of San Francisco, California, hereinafter referred to as "Peck," and Allan B. Ruddle of San Francisco, California, hereinafter referred to as "Ruddle," and Shell Oil Company, a California corporation of 100 Bush Street, San Francisco, California, hereinafter referred to as "Shell Oil,"

Exhibit B—(Continued)

Witnesseth that:

Whereas, Peck and Ruddle warrant they are the owners of all rights to a new and useful core binding composition hereinafter referred to as "Core-Min-Oil," consisting of two components, a secret solution and asphalt emulsion, and to new compositions for other foundry uses such as core covering,

Whereas, Peck and Ruddle warrant that said Core-Min-Oil is fully described in U. S. Patent Application Serial No. 165,765, filed Sept. 25, 1937, entitled "Moulder Product"; U. S. Patent Application Serial No. 179,150, filed Dec. 10, 1937, entitled "Moulded Product"; and U. S. Patent Application Serial No. 184,237, filed Jan. 10, 1938, entitled "Composition of Matter", all filed in the name of Ruddle,

Whereas, Peck and Ruddle warrant that they are the exclusive co-owners of said U. S. patent applications and warrant that there are no licenses or other intersts outstanding,

Whereas, Shell Oil is interested in acquiring exclusive rights under the inventions disclosed in said patent applications,

Now Therefore, the parties have agreed as follows:

1. That Peck and Ruddle hereby grant unto Shell Oil an exclusive license to make, use or sell, under the said three Ruddle U. S. patent applica-

Exhibit B—(Continued)

tions, any renewals, continuations, divisions, substitutions of said applications and any patents to be issued thereon, and under any applications covering improvements of the inventions disclosed in said applications and other inventions in so far as [50] they relate to compositions for foundry use owned or controlled by Peck or Ruddle, and any patents issued, together with the right to sublicense third parties. Peck and Ruddle shall not make, use or sell compositions for foundry use disclosed in said patent applications and patents while this license remains exclusive.

2. Shell Oil shall diligently attempt to sell Core-Min-Oil and other compositions for foundry use as covered by said patent applications or later patents.

3. Shell Oil shall diligently attempt to interest its affiliated, subsidiary and parent companies in the United States to sell Core-Min-Oil and other compositions for foundry use as covered by said patent applications or later patents.

4. The policy and method of marketing Core-Min-Oil of its components and other compositions for foundry use and the price thereof, shall be left entirely to the discretion of Shell Oil.

5. Peck and Ruddle will not engage in the business of making or selling compositions for foundry use during the life of this agreement within the City and County of San Francisco. Peck and Ruddle represent it is their intention not to engage in the business of making or selling composi-

Exhibit B—(Continued)

tions for foundry use anywhere in the United States during the life of this agreement.

6. Peck and Ruddell hereby grant unto Shell Oil any and all good will of their business of making and selling compositions for foundry use together with all their right, title and interest in and to the term "Core-Min-Oil".

7. Shell Oil agrees that it and its affiliated, subsidiary and parent companies in the United States will pay as royalty to Peck and Ruddell on all their sales of Core-Min-Oil and other compositions for foundry use, sold for use in the United States, percentage of sales prices to consumer, F.O.B. manufacturing plant, (excluding sales tax and containers) according to the following sliding scale: [51]

On the first 1,000,000 gals. sold per	
year	—15%
On the next 1,000,000 to 3,000,000	
gals. sold per year	—14%
On the next 3,000,000 to 6,000,000	
gals. sold per year	—13%
On the next 6,000,000 to 8,000,000	
gals. sold per year	—12%
On the next 8,000,000 to 10,000,000	
gals. sold per year	—11%
On all over 10,000,000 gals. sold per	
year	—10%

8. If Shell Oil together with its affiliated, subsidiary and parent companies does not sell for use

Exhibit B—(Continued)

in the United States at least 250,000 gallons of Core-Min-Oil, during the first two years from date hereof together, or 500,000 during the third year, or 750,000 during the fourth year, or 1,000,000 during the fifth and all subsequent years, then Peck and Ruddie may declare this license agreement non-exclusive for the United States and Proceed to license third parties unless Shell Oil pays to Peck and Ruddie the royalties on such minimum quantities.

Shell Oil is entitled to apply the total sales to foundries in the United States under this agreement including sales both of the solution and emulsion parts of Core-Min-Oil, against these minimum quantities no matter whether the foundry uses such purchases for other purposes than as a core binder and Shell Oil is not obligated to check such uses. However, those quantities of solution which are separately sold for the specific purpose of core covering, shall not be included in the minimum.

In computing the additional royalty due to Peck and Ruddie under this article to prevent the license from becoming non-exclusive, the total gallonage actually sold under this agreement which may be applied against the minimum under the preceding paragraph, shall be deducted from the minimum gallonage established for the period under consideration and the difference shall represent the gallonage upon which Shell Oil may pay such additional royalties at the rate of 15% of the price per gallon. The price per gallon for this unsold quan-

Exhibit B—(Continued)

tity shall be established as the average price for which sales have been made, viz., by adding the sales prices [52] to consumer F.O.B. manufacturing plant (less sales tax and containers) on the sales applicable against the minimum for the period under consideration (excluding therefore the sales prices of solution sold for core covering, according to the preceding paragraph) and dividing this total by the number of gallons of those sales.

9. To take advantage of the sliding scale of Article 7, or the minimum yearly sales provisions of Article 8, the sales of Shell Oil, its sublicensees, affiliated, subsidiary and parent companies in the United States may be consolidated.

10. Shell Oil and its affiliated, subsidiary and parent companies in the United States will keep accurate books of account of their operations under the terms of this agreement and will render to Peck and Ruddell on or before the last days of February, May, August and November, notarized statements for the prior three months periods ending December 31, March 31, June 30 and September 30, respectively, showing the amounts of Core-Min-Oil or the components for making Core-Min-Oil and other compositions for foundry use sold, the price realized therefor, and the royalty payable.

11. Shell Oil agrees that at the time of rendering said statements called for in Article 10, it will pay to Peck and Ruddell the royalties prescribed.

12. Shell Oil will permit a certified Public Accountant mutually acceptable to Shell Oil and to

Exhibit B—(Continued)

Peck and Ruddle to inspect during reasonable business hours, its records and accounts pertaining to Core-Min-Oil and other compositions for foundry use within this agreement.

13. Shell Oil will endeavor to purchase for Five Thousand Dollars (\$5,000.00) or less, for the joint account of itself and Peck and Ruddle, the Thomas U. S. Patent 1,561,956, issued November 17, 1925, entitled "Manufacture of Cores". If Shell Oil does so purchase said patent it will deduct one-half of the purchase price from one-half of the royalties payable under this agreement to [53] Peck and Ruddle. Upon completion of said reimbursement, Shell Oil will transfer to Peck and Ruddle an undivided one-half interest in said Thomas patent.

14. The term of this agreement shall extend until the expiration date of the last issued patent owned or controlled by Peck or Ruddle covering Core-Min-Oil.

15. Shell Oil may terminate this license agreement in the United States at any time after five years from date hereof by giving thirty days notice in writing to Peck and Ruddle.

16. Shell Oil or an affiliated, subsidiary or parent company will file in its own name and at its own expense, patent applications in any country outside the United States in which it desires to make or sell Core-Min-Oil. The title to any foreign patent obtained shall vest in Shell Oil or the affiliated, sub-

Exhibit B—(Continued)

subsidiary or parent company of Shell Oil, which shall maintain such patent at its own expense. Shell Oil will inform Peck and Ruddell of the patent numbers, term and further details of any foreign patents obtained under this Article.

17. Shell Oil may terminate this license agreement in any country outside the United States after five years from date hereof by giving written notice to Peck and Ruddell. Upon Shell Oil delivering to Peck and Ruddell written notice that it or its affiliated, subsidiary or parent company elects to terminate the license in a particular foreign country, Shell Oil will arrange within thirty days for the transfer of the said foreign patent to Peck and Ruddell.

18. If Shell Oil or its affiliated, subsidiary and parent company is unable to obtain a patent on Core-Min-Oil in a particular foreign country within three years from date of filing patent application in said country, then no further royalties shall be paid to Peck and Ruddell on sales in said country.

19. The royalty rate for Core-Min-Oil sold for use in [54] foreign countries shall be one-half of the rate specified in Article 7 for like quantities. In calculating the royalties due, quantities sold for use in all foreign countries may be consolidated with each other but not with the sales for use in the United States and computed under the same sliding royalty scale. In case the sales price on which royalties are to be paid is payable in a foreign country

Exhibit B—(Continued)

or in a foreign currency, said royalty shall be subject to the same restrictions and limitations as may attach to the payment of the sales price if any when received.

20. Peck and Ruddle will instruct their patent attorney to give Shell Oil at its request all information concerning its pending patent applications (including copies of said applications and all office actions and amendments) and any further applications on improvements of Core-Min-Oil, and other compositions for foundry use. Peck and Ruddle will instruct their patent attorney to give Shell Oil's representatives at their request, a power of attorney to inspect and make copies of the Patent Office files of said pending applications.

21. Upon request Shell Oil will take over the further prosecution of said pending United States applications and any further improvements thereof until further notice given by Shell Oil.

22. Peck and Ruddle will allow Shell Oil up to six months from date of receiving copies of the present filed Ruddle applications to investigate the patent situation in regard to Core-Min-Oil. In the event Shell Oil considers the patent situation unsatisfactory at or before the end of said six months period, then Shell Oil may terminate this agreement forthwith.

23. Peck and Ruddle and Shell Oil, its affiliated, subsidiary and parent companies, agree that they will use their best efforts to prevent informa-

Exhibit B—(Continued)

tion concerning the formula of Core-Min-Oil and its method of manufacture from being obtained by unlicensed third parties. [55]

24. The obligations of Peck and Ruddle herein to Shell Oil or its assignee shall be joint and several and shall be binding upon their executors, administrators, heirs, and legal representatives.

25. Promptly upon the execution of this agreement Peck and Ruddle will inform Shell Oil in writing as to the name and address of the party to whom statements, payments, notices, etc., under this agreement shall be sent, and the sending of such statements, payments, notices, etc., by registered mail to said named party at the given address shall be considered as delivery to Peck and Ruddle until further notice in writing.

26. If Peck and Ruddle at any time fail to appoint a party to whom all statements, payments and notices are to be sent, then Shell Oil will send such statements and notices to each of Peck and Ruddle and will pay one-half of any royalty due upon this agreement to each of Peck and Ruddle, and such payment shall be considered as payment within the terms of this agreement.

27. Peck and Ruddle and Shell Oil will keep each other informed of any improvements of said products and their method of manufacture.

28. Shell Oil will grant unto Peck and Ruddle a non-exclusive, free license until notice of termination of this agreement under any improvements it

Exhibit B—(Continued)

or its affiliated, subsidiary and parent companies may make in Core-Min-Oil together with the right to sublicense. Any sublicense granted under this Article by Peck and Ruddle before notice of termination of this agreement shall remain in force.

29. In the event Peck and Ruddle decide to sell the patent rights on Core-Min-Oil or other compositions for foundry use, they will first offer the same to Shell Oil at the bona fide price offered by a wholly independent third party.

30. In the event of any assignment of this contract, then time shall be of the essence of the contract and any violation of [56] the contract or default in performance by the assignee shall give Peck and Ruddle the right to terminate this agreement without requiring any restoration by Peck and Ruddle of anything received by them theretofore; and waiver of any default without bringing suit by Peck and Ruddle shall not be considered a continuing waiver of further violations of the agreement.

In case Peck and Ruddle desire to terminate the agreement under this Article they, Peck and Ruddle, shall give written notice of termination to Shell Oil's assignee (with copy to Shell Oil) thirty (30) days prior to the date such termination shall take effect, setting forth the violation of the contract or default in performance on which the termination is based.

In the event Shell Oil's assignee remedies said

Exhibit B—(Continued)

violation or default in a manner satisfactory to Peck and Ruddle within said thirty (30) days, then the notice of termination shall be of no effect.

31. Wherever used in this agreement, the term "Core-Min-Oil" shall mean the core binding composition containing asphalt emulsion coming within the claims of any pending application or issued patent owned or controlled exclusively by Peck and Ruddle.

32. The term "affiliated, subsidiary and parent companies" shall mean the Shell Union Oil Corporation, a Delaware corporation, its subsidiary and parent companies and the subsidiaries of said parent companies throughout the world and the companies managed *to* controlled by one or more of them.

33. The term "parent company" shall mean a corporation which owns or controls directly or indirectly not less than 50% of the voting stock of another corporation, said latter corporation being a "subsidiary company".

34. The term "United States" as used herein shall include not only continental United States but also Alaska, The Hawaiian Islands and all territory which, during the term of this agreement, is subject to the jurisdiction of the United States and either [57] included in the patent grant or to which the rights of United States patents may be extended by mere registration.

Exhibit B—(Continued)

In Witness Whereof, the parties have caused these presents to be executed in counterpart originals as of the day and year first above written.

(s) LYDELL PECK

(s) ALLAN B. RUDDLE

SHELL OIL COMPANY

By (s) J. A. C. GUEPIN

Vice President

By (s) A. R. BRADLEY

Secretary

Witness:

(s) J. F. McSWAIN

James F. Peck of San Francisco, California, hereby declares that he has no interest in the above agreement and the subject matter thereof and consents and approves of its execution.

Signed at San Francisco, California, this 8th day of April, 1938.

(s) JAMES F. PECK

Witness:

(s) B. GRATAMA [58]

EXHIBIT C

Letterhead of

Bernard J. Gratama

Attorney-at-Law

San Francisco

Shell Building

November 2, 1938

Mr. R. C. Hackley, Jr.

Townsend & Hackley

Crocker Building

San Francisco, California

PECK-RUDDLE AGREEMENT

Dear Mr. Hackley:

I thank you for your letter of November 1, 1938, setting forth the principal points desired by Messrs. Peck and Ruddle in a proposal for a new agreement.

After due consideration I wish to advise you that the Shell Oil Company has decided to continue under the existing agreement of April 8, 1938, and drop all negotiations for a new agreement.

This will confirm our telephone conversation of this morning.

Yours very truly,

(s) B. GRATAMA

HB:EDB

cc: Mr. J. E. McSwain

Shell Oil Company [59]

EXHIBIT D

Letterhead of

Shell Oil Company

Incorporated

Shell Building

San Francisco

July 26, 1939

Register—Return Receipt

Mr. Allan B. Ruddie

Mr. J. Lydell Peck

Crocker Building

San Francisco, California

CORE-MIN-OIL

Gentlemen:

We refer to agreement with you dated April 8, 1938, concerning United States Patent Applications, Serial Nos. 165,756, 179,150 and 184,237, and particularly to your warranty therein that you are the owners of a new and useful core binding composition consisting of two components, a secret solution and asphalt emulsion. You have since disclosed the secret solution to us and as a result thereof, our staff has made diligent and continuous efforts to manufacture a core binding composition such as disclosed in said patent applications which would be acceptable for commercial foundry use. For this purpose, we have expended in excess of \$10,000.00. Our efforts, however, have been entirely unsuccessful and have demonstrated that a commercial prod-

uct conforming with the disclosures of said patent applications cannot be developed and marketed.

The agreement of April 8, 1938, is therefore cancellable at our election because of the entire failure of consideration and we desire to hereby notify you of our election to cancel and terminate forthwith the agreement of April 8, 1938, and do hereby notify you that the same is cancelled and terminated.

Under separate cover, we are forwarding you a report of our research to develop a core composition as proposed by you. In regard to your patent applications now being handled under our direction, we shall appreciate your informing us of the name of the attorney whom you desire to further handle these cases and to whom records of proceedings to date may be forwarded.

It is, of course, understood that we will keep the information contained in your patent applications confidential.

Yours very truly,

SHELL OIL COMPANY, Incorporated

By (s) L. G. McLAREN

Vice President [60]

EXHIBIT E

July 28, 1930

Shell Oil Company
Shell Building
San Francisco, California

Attention Mr. L. G. McLaren,
Vice President.

Gentlemen:

Re—Contract of April 8, 1938;
Your letter of July 26, 1939.

Your letter of July 26, 1930, has been received, and upon receipt of the report stated to be forthcoming in the third paragraph thereof, the same will be referred to our attorneys for analysis and an opinion.

So that there may be no misunderstanding whatsoever about our position, we may state now that we consider your letter of July 26, 1939, to be a self-serving declaration, of no force or effect, and that we therefore stand squarely upon the agreement between your concern and ourselves dated April 8, 1938, and consider the same to be in full force and effect. We therefore require you to maintain said contract fully and faithfully in all respects.

We note that you wish to relieve your legal department of the burden of prosecuting applications for patent pending under the above named agreement.

Therefore, pursuant to the terms thereof, we

notify you that you may return the complete file on said pending applications to our patent counsel, Messrs. Townsend & Hackley, 909 Crocker Building, San Francisco, California, who will continue prosecution of the applications until such time as you may wish to re-assume direct control thereof. In the interim, our counsel will keep you fully informed as to the prosecution of said applications, exactly as provided by said contract.

Very truly yours,

LYDELL PECK,

A. B. RUDDLE.

JLP:MM. [61]

EXHIBIT F

Copy

Letterhead of Shell Oil Co.

Shell Building

San Francisco

August 18, 1939

Mr. Allen B. Ruddie

Mr. J. Lydell Peck

Crocker Building

San Francisco, California

Gentlemen:

CORE-MIN-OIL

With reference to our letter of July 26, 1939, as promised in the penultimate paragraph thereof we are enclosing herewith the reports in question. These reports are as follows:

T. A. C. Report No.	79,	dated	February 24, 1938
T. A. C.	" "	90	" March 22, 1938
Special	"	R-168	" June 14, 1938
T. A. C.	"	No. 226	" June 30, 1938
T. A. C.	"	" 227	" June 30, 1938
T. A. C.	"	" 228	" July 1, 1938
Special	"	R-175	" July 26, 1938
T. A. C.	"	No. 290	" August 29, 1938
T. A. C.	"	" 367	" October 27, 1938
T. A. C.	"	" 462	" November 30, 1939
T. A. C.	"	" 472	" December 15, 1938
T. A. C.	"	" 561	" March 23, 1939

Report entitled "Preparation and Testing of Mixed Core Oils Containing Bituminous Emulsions and Sodium Silicate" dated August 7, 1939 (2 copies).

Quite apart from and in no wise resulting from the investigation made in pursuance of our arrangement with you, we found some core oils not containing the so-called "Ruddle" solution or sodium silicate which at present seem more promising from a technical standpoint. We wish you to know we intend to do further work with these oils and that we do not consider ourselves bound to in anywise report to you thereon or to in anywise account to you in connection therewith.

Very truly yours,

SHELL OIL COMPANY, INCORPORATED,

(s) L. G. McLAREN.

Encls. [62]

EXHIBIT F-1

Report: TAC-#79

Date: Feb. 24th 1938

W. O.: #1262

Shell Oil Company

Martinez Refinery

Subject: Substitute for Core Oil.

Author: E. H. Spotswood.

Summary:

When pouring iron castings at foundries difficulty is encountered due to the gas given off from the molten iron. This gas, unless able to escape, will cause blow holes in the casting and subsequent rejection of the casting.

A "Special Solution" has been invented by Mr. A. Ruddle which, it is hoped, will greatly facilitate the pouring of castings. This solution is blended with emulsion and then mixed with the proper amount of sand, and the mixture is molded into the desired shape and cooked in an oven until thoroughly dry. The finished product is the "core" for the iron casting.

The function of the "Special Solution" is to bind the sand together into the desired shape. The Asphalt from the emulsion also helps in this respect, but its prime function is to burn to carbon during the pouring of the iron casting, thus making the core friable so that it may be removed from the finished casting.

Difficulty was encountered by Mr. A. Ruddle when incorporating the emulsion with the "Special So-

EXHIBIT F-1—(Continued)

lution'' and sand. The cores obtained using this mixture were not uniform in hardness. To determine the cause of this, a number of samples were prepared in the Asphalt Applications Laboratory and the effects of variation of formula, temperature, and type of heat (electric and gas) were investigated. Also samples were dried in a CO₂ atmosphere and examined.

Conclusions:

Satisfactory cores may be prepared by using the "Special Solution", and Y-104 mixed with sand, care being taken to exclude CO₂ when drying in gas ovens.

A soft crust is formed on cores dried in a gas oven, due to the reaction between the CO₂ from combustion and the "Special Solution" which contains a large percentage of Na₂Si₄O₉. This effect can be nullified (a) by using an electric oven, (b) by placing hoods with small holes for steam to escape over the cores, or (c) by proper design of the gas oven (indirect heating). [63]

Temperatures differences do not appear to effect the finished product to any important extent. Temperatures of 300-400°F. appear most desirable, but not absolutely necessary.

A formula which consisted of the following gave good results.

Special Solution	5.30%/vol.
Sand	93.10%/vol.
Premix Emulsion	
(Y-104)	1.60%/vol.

EXHIBIT F-1—(Continued)

This formula can be varied to obtain the desired strength in the core. [64]

Reference:

In reference to Head Office Sales—Asphalt memorandum of January 7th, 1938, titled, "Union Oil Company Emulsified Asphalt for Core Oil" and Head Office Sales—Departmental memorandum of January 25th, 1938, titled "Substitute for Core Oil", and further discussion between Mr. A. Ruddle, Mr. J. F. McSwain, Mr. L. Snyder, and Mr. E. H. Spotswood, we have carried out the following experimental work.

Introduction:

When pouring iron castings at foundries, considerable care must be exercised to prevent gas accumulation and bubble formation in the casting resulting in rejection of the casting. The core, which forms the inner side of the casting, is a mixture of sand and oil molded to the desired shape and dried in an oven; this core must be very porous to allow the hot gases to escape and also should break up easily after the casting has been poured.

Presentation.

A. Application Problems

A "Special Solution" has been developed by Mr. A. Ruddle. This solution when incorporated with the sand, dries and binds the sand together in a strong unit. By this method larger, stronger, and much more porous cores can be made. However, the cores do not break up readily after pouring the cast-

EXHIBIT F-1—(Continued)

ing, and in order to overcome this difficulty, Mr. Ruddle decided to incorporate premix emulsion with the solution and sand. The asphalt burns to carbon during the pouring of the casting thus making the core friable so that it may be removed from the finishing product.

During the preparation of numerous samples at the Macauley Foundry in Berkeley, California, Mr. Ruddle observed that the samples were not homogenous in their degree of hardness. The samples prepared appeared hard on the bottom and soft on the top. Mr. Ruddle thought that possibly there was a chemical reaction between the emulsion and the solution, which is strongly alkaline. A special neutral premix emulsion was prepared (see Laboratory Report #46485-C), but the results obtained with this emulsion were not satisfactory. Further examination of the samples indicated the possibility of a settling out of the solution, since it has a higher specific gravity than the emulsion. [65]

In order to determine the cause of the inconsistency of the cores, a series of samples were prepared in the laboratory.

B. Core Making Materials

Core Sand—(Source Macaulay Foundry)

1. Mechanical Analysis

Pass	10 mesh	retained	20 mesh	.02%
"	20	"	40 "	1.70%
"	40	"	80 "	94.60%
"	80	"	200 "	3.66%
"	200	"		.02%

EXHIBIT F-1—(Continued)

2. Specific Gravity	2.65
3. Apparent Specific Gravity (loose)	1.55
4. Per cent of voids (Loose)	41.5 %

Special Solution

1. Large Percentage of $\text{Na}_2\text{Si}_4\text{O}_9$
2. Baume gravity

Y-104

Premix Emulsion

C. Experimental Data and Procedure

The trial mixes were prepared in small batches of about 800 grams each, samples being molded and dried in a small gas oven.

A series of samples were prepared using several different formulas and various curing temperatures. The following Tables I, II, and III show the data accumulated. [66]

TABLE I

Experimental Blends and Temperatures with Gas Oven

No.	% Vol. Sol.	%/vol. Emul.	%vol. Sand	Oven Temp. ° F	Drying (gram) time* (min.)	Wt. Sample	Uniformity of Hardness
1	6.65		93.35	450	78	875	Soft top and sides
2	6.50	2.08	91.42	450	—		do
3a	5.30	1.60	93.10	450	32	228	do
3b	5.30	1.60	93.10	450	90	1360	do
4a	5.30	1.60	93.10	600	37	210	do
4b	5.30	1.60	93.10	540	35	188	do
5a	5.30	1.60	93.10	400	65	211	do
5b	5.30	1.60	93.10	400	82	877	do
6a	5.30	1.60	93.10	290	105	893	Slightly soft around edges

*Time required to dry to constant weight.

EXHIBIT F-1—(Continued)

In order to compare gas and electric heat several samples were cured in the electric oven. Table II following indicates the results obtained.

TABLE II
Comparative Curing Gas and Electric Oven

No.	%vol. Sol.	% vol. Emul.	% vol. Sand	Oven Temp. °F.		Drying time (min.)	Wt. Sample (gms.)	Uniformity of hardness
				Gas	Electric			
7	5.30	1.60	93.10		370	38	188	even
8	5.30	1.60	93.10		370	90	823	even
9a	5.30	1.60	93.10		300	45	211	even
9b	5.30	1.60	93.10	580		45	207	not fully cured, soft spots
10a	5.30	1.60	93.10		300	45	211	even
10b	5.30	1.60	93.10	290		45	207	not fully cured, soft spots

To compare the degree of hardness of the different formulas several samples were prepared and observed. Table III following tabulates the results obtained.

[67]

TABLE III
Comparative Formulas

No.	%vol. Sol.	% vol. Emul.	%vol. Sand	OvenTemp. °F.		Drying (gm.) time (min.)	Wt. Sample	Hardness*	Uniformity
				Gas	Electric				
11	4.25	2.66	93.09	580		45	210	4	uneven
12	5.30	1.60	93.10	580		45	207	3	uneven
13	4.25	2.66	93.09		300	43	213	2	even
14	5.30	1.60	93.10		300	45	211	1	even

*Hardness scale, #1 denotes hardest material.

The results shown in Table II indicated that satisfactory cores could be prepared in the electric oven, but not in the gas oven. This indicated the

EXHIBIT F-1—(Continued)

possibility of the sample being effected by either the moisture or flue gases from the combustion in the gas oven.

To check the effect of CO_2 on the curing of the cores, a continuous flow of CO_2 was admitted to the electric oven and small cores were dried to constant weight and then examined. The cores completely disintegrated when touched.

To further check the chemical reaction between the CO_2 and the ingredients in the core, CO_2 was bubbled through approximately 100 cc. of the "Special Solution". A hard white insoluble material was precipitated out.

In order to cook satisfactory cores in the gas oven it appeared necessary to exclude CO_2 from the sample. A small core was molded and covered with a tin can which had a small hole punched in the top in order that the water vapor might escape. This sample was cured to constant weight at 580°F . in the gas oven and then cooled. The core appeared very satisfactory. [68]

Discussion:

The results obtained as shown in Table I indicated that the temperature of curing the samples had little if any effect. The samples cured at the lower temperatures appeared slightly superior, but all the samples were considered unsatisfactory. Comparison of samples 3a with 3b and 5a with 5b indicated no correlation between drying time and weight of dried samples.

EXHIBIT F-1—(Continued)

The samples in all cases were soft from one-half to one inch in on the top and sides. This indicated that the softening was due to conditions other than settlement.

Results from Table II show that satisfactory cores could be prepared with the electric oven, but not in the gas oven.

Samples prepared in the electric oven with an atmosphere of CO_2 crumbled to pieces upon removal from the oven. The bubbling of CO_2 through the "Special Solution" and the preparation of satisfactory cores in the gas oven when proper measures were taken to exclude CO_2 from the sample definitely establish the CO_2 as causing the softening of the shell of the sample.

Tabulations from Table III show that the degree of hardness of the finished sample may be changed by varying the formula. The exact formula to use, and especially the amount of asphalt, will depend upon how much trouble is encountered in removing the core from the finished casting. The higher the Asphalt content the more easily the core should be removed.

Conclusions:

Satisfactory cores may be prepared by using the "Special Solution" and Y-104 mixed with sand, care being taken to exclude CO_2 when drying in gas ovens.

A soft crust is formed on cores dried in a gas oven, due to the reaction between the CO_2 from

EXHIBIT F-1—(Continued)

combustion and the "Special Solution" which contains a large percentage of $\text{Na}_2\text{Si}_4\text{O}_9$. This effect can be nullified (a) by using an electric oven, (b) by placing hoods with small holes for steam to escape over the cores, or (c) by proper design of the gas oven (indirect heating).

Temperatures differences do not appear to effect the finished product to any important extent. Temperatures of 300-400°F. appear most desirable, but not absolutely necessary. [69]

A formula which consisted of the following gave good results.

Special Solution 5.30%/vol.

Sand 93.10%/vol.

Premix Emulsion

(Y-104) 1.60%/vol.

This formula can be varied to obtain the desired strength in the core.

Signed,

E. H. SPOTSWOOD.

Approved,

L. J. SNYDER.

EHS:lv [70]

EXHIBIT F-2

Report: TAC-#90

Date: March 22nd, 1938

Shell Oil Company
Martinez Refinery

Subject: Substitute for Core Oil

Author: E. H. Spotswood.

Summary:

This report is a supplement to the work carried out in T.A.C. Report #79. The purpose of this report is to furnish the Asphalt Sales Department with data on the drying rates of "Special Solution" and Y-104 mixed with sand as compared to Linseed Oil, Lin-Oil and Houghton Oil when mixed with sand. Relative information has also been obtained on the relation between drying time, and area, volume, and weight of the cores, effect of variation of the temperature on drying rates, and the behavior due to variation of formula, of the core after the casting has been poured.

Conclusions:

The curing of cores prepared from "Special Solution" Y-104, and sand, in CO₂ free ovens can be done in one third the time required for cores of the same size and shape prepared with Houghton Oil and sand. Cores prepared with either Houghton Oil or Lin-Oil cure in the same length of time while cores prepared with Linseed Oil cure more slowly.

The drying time required for cores of various

EXHIBIT F-2—(Continued)

shapes does not correlate with area, volume or weight of the core. Variations in temperature effect the drying rates of the cores, although increases in temperature above 400°F. yield small savings in time. The most desirable drying temperature is 400°F. to 500°F.

Varying the proportion of Premix Emulsion to "Special Solution" (i.e., increasing the amount of Y-104 and decreasing amount of "Special Solution") changes the strength and friability of the cores after they have been exposed to heat, equivalent to that of molten metal present during the pouring of the casting in the foundry. [71]

References:

In line with the work carried out and reported in T.A.C. Report #79 and further discussion between Mr. A. Ruddle, Mr. A. Waller and Mr. E. H. Spotswood, we have carried out the following tests:

Introduction:

This report is a supplement to the work carried out and discussed in T.A.C. Report #79, in which report it was stated that satisfactory cores could be produced using "Special Solution", Y-104, and sand, the mixture being dried in an oven free of CO₂ gas.

The purpose of this report is to furnish the Asphalt Sales Department with data on the drying rates of "Special Solution" and Y-104 mixed with

EXHIBIT F-2—(Continued)

sand as compared to Linseed Oil, Lin-Oil, and Houghton Oil mixed with sand. This and other information developed in the report will supply the Sales Department with information necessary for the introduction of the product to the Industry.

Presentation:

A. Core Making Materials

Cord Sand

1. Specific Gravity	2.65
2. Apparent Specific Gravity (loose)	1.55

Special Solution

1. Large percentage of sodium silicate	
2. Baume gravity	32°
3. Specific Gravity	1.29
4. Per cent water (by weight)	37

Premix Emulsion

Y-104

Houghton Oil

1. A. P. I. Gravity	18.6
2. Specific Gravity	.9427

Lin-Oil

1. A. P. I. Gravity	19.6
2. Specific Gravity	.9365
	[72]

Linseed Oil

1. A. P. I. Gravity	20.3
2. Specific Gravity	.9321

B. Experimental Data and Procedure

To compare the curing rates of the various oils and solution, the loss in weight of the materials when spread out in thin films in Petri dishes and cooked in the electric oven at 340°F. was recorded. The following Table I shows the data obtained.

EXHIBIT F-2—(Continued)

TABLE I

Curing Rates of Core Oils

Type of Core Binder Time cooked (min.)	Temperature Net Weight Material		340°F. 10 grams	
	Houghton Oil Loss Grams	Linseed Oil Loss Grams	Special Sol.* and Y-104 Loss Grams	Lin-Oil Loss Grams
10	2.1	0.0	6.2	1.4
20	2.3	0.1	6.2	1.6
30	2.5	0.1	6.2	2.1
50	2.9	0.2	6.2	2.2
70	3.0	0.3	6.2	3.8
135	3.2	0.3	6.2	3.8
265	3.2	0.3	6.2	3.8

*Mixture of Y-104 and "Special Solution" in ratio of 23-77 parts by volume.

The various oils reached constant weight in from one to two hours, but only after two days continuous cooking did they harden to a gum. This indicated that the binding effect obtained in the mixture of sand and oil was due to polymerization of the oil and not to evaporation. It is therefore apparent that the determination of the curing time by drying to constant weight could not be used for the oils and another method would have to be used. Also, previous experiments had shown that the determination of the drying time by curing to constant weight was unreliable in the case of the Y. 104 and "Special Solution" and more reliable method must be used. [73]

In order to compare the drying rates of cores

EXHIBIT F-2—(Continued)

prepared with different binding agents, and having different volumes and areas, a series of cubes varying in size from one to six inches on a side were molded. To facilitate the molding, a series of cubical forms were fabricated out of wood and used as molding boxes. The boxes were designed with a slight taper from top to bottom to facilitate removal of the core, and each mold box resembled a square container without top or bottom. To determine the drying time of each size cube six cubes of each size were prepared and cured in the oven for varying lengths of time. All six cubes were placed in the oven at the same time and cured for an estimated minimum length of time, when one cube would be withdrawn and the remaining cubes were withdrawn at five and ten minute intervals. The cubes when cool were sawed in two and examined for soft spots. The curing time for the first entirely hard cube in the series was taken as the correct time.

Table II following shows the data accumulated on the one inch cube, which is illustrative of the method followed.

EXHIBIT F-2—(Continued)

TABLE II

Drying Rates of One Inch Cube

Formula: "Special Solution" (% by vol.)	5.3
Y-104 (% by vol.)	1.6
Sand (% by vol.)	93.1

No.	Oven Temperature, °F.	Drying Time (min.)	Uniformity of Hardness
1	370	5	slightly wet center
2	380	10	dry
3	380	15	dry
4	380	20	dry
5	390	25	dry
6	390	30	dry

Table III following shows a summary of the data accumulated on the different cubes using "Special Solution" and Y-104 mixed with sand, and Table IV shows a summary of data obtained on the 1, 2, and 3 inch cubes using Houghton Oil and sand. [74]

TABLE III

Drying Rates of Cubical Cores using
"Special Solution"

Formula: "Special Solution" (% by vol.)	5.3
Y-104 (% by vol.)	1.6
Sand (% by vol.)	93.1

Cube Size	Drying Time	Indirect Heat Gas Oven Temp.	Weight	Volume	Area
(inches)	(min.)	(°F.)	(lbs.)	(in. ³)	(in. ²)
1	10	380	.059	1	6
2	20	380	.437	8	24
3	30	400	1.440	27	54
4	40	400	3.620	64	96
5	50	400	7.000	125	150
6	60	390	12.400	216	216

EXHIBIT F-2—(Continued)

TABLE IV

Drying Rates of Cubical Cores using
Houghton Oil

Formula: Houghton Oil 6.9% by vol.
 Sand 93.1% by vol.

Cube Size	Drying Time	Direct Heat Gas Oven Temp.	Weight	Volume	Area
(inches)	(min.)	(°F.)	(lbs.)	(in. ³)	(in. ²)
1	30	520	.059	1	6
2	65	510	.437	8	24
3	130	520	1.440	27	54

From the data contained in Table III curves were plotted of drying time against volume, area, and weight. The data correlated well giving a set of smooth even curves. A series of small cylindrical cores were prepared and the drying time was determined using a two minute increment. With the determined values for volume, area, weight, and drying time of the core, points were plotted on the graph which did not fall on any of the curves determined by the cube series. This indicates that the drying time is a function of more than one variable and that the curves would hold for cubes only and no other geometrical shapes. [75]

To establish the order of drying of the three oils with respect to each other, a sufficient number of two inch cubes were prepared so that specimens cooked for 50, 60 and 70 minutes respectively using each of the oils, could be obtained. The following Table V lists the results.

EXHIBIT F-2—(Continued)

TABLE V

Drying Rates of Cubical Cores using
Various Core Oils

Formula: Core Oil (% by vol.)	6.9
Sand (% by vol.)	93.1

Conditions:

Temperature (direct heat-gas oven)
530°F.

Drying Time (min.)	50	60	70
Core Oil	Uniformity of Hardness	Uniformity of Hardness	Uniformity of Hardness
Houghton Oil	Soft Center	Slight Soft Center	Hard—Even
Lin-Oil	Soft Center	Slightly Soft Center	Hard—Even
Linseed Oil	Very Soft Center	Soft Center	Slight Soft Center

Results as shown in the above Table V indicate that cores prepared with Houghton and Lin-Oil cure in the same length of time and those prepared with Linseed Oil take a longer time.

To determine the effect of variations of temperature upon the drying rate of the cores, two inch cubes were cooked at varying temperatures for exactly 20 minutes in the gas and electric ovens. The following Table VI tabulates the results. [76]

EXHIBIT F-2—(Continued)

TABLE VI

Effect of Variation in Temperature Upon
Drying Rate of Cores

Formula: "Special Solution" (% by vol.)	5.3
Y-104 (% by vol.)	1.6
Sand (% by vol.)	93.1

Curing time—20 minutes

Drying Tempera-

ture °F.		215	300	400
No.	Oven	Uniformity of Hardness	Uniformity of Hardness	Uniformity of Hardness
1	Gas	Soft in Center	Slightly Soft in Center	Hard—Even
2	Electric	Soft in Center	Slightly Soft in Center	Hard—Even

Results from Table VI indicates that temperature of 400°F. and up give minimum length cooking periods. Several two inch cubes were cooked at 500°F. and the length of time required compared to that required at 400°F. The saving in time fell within the time increments used in the test (5 min.).

To determine the variation in performance of cores and the degree of friability after the casting has been made, due to variation in original formula and types of core oils, a series of two inch cubes were prepared using different blends of Y-104 and "Special Solution" and sand and also Houghton oil with sand. The cubes were cured and then cooked for fifteen minutes in a muffle furnace at 1700°F. This last high temperature cooking is a fair duplication with approximately 300°F. lower tempera-

EXHIBIT F-2—(Continued)

tures, of actual pouring conditions in the foundry. The following Table VII tabulates the results obtained. [77]

TABLE VII

Effect of Formula Variation on Friability
of Cores After Severe Heating

No.	% Vol. Sol.	% Vol. Emul.	% Vol. Houghton Oil	% Vol. Sand	Heat Temp. ° F.	Time (min.)	Condition After Heating
1	5.30	1.60		93.1	1700	15	retained shape fairly hard
2	4.10	2.80		93.1	1700	15	retained shape fairly soft
3	3.50	3.40		93.1	1700	15	retained shape soft
4			6.90	93.1	1700	15	disintegrated
5		6.90		93.1	1700	15	disintegrated

The above results show that any degree of friability may be obtained by variation of the formula for the core solution.

Discussion:

The results shown in Tables III and IV tabulate the drying times for the various cube sizes, the cubes being prepared with "Special Solution" and Y-104 in one case and with Houghton Oil in the other case. The drying times are tabulated against weight, area, and volume of the cube shaped cores. Comparison of drying rates from Tables III, IV and V show the "Special Solution" and Y-104 cures three times as fast in the cube sizes up to three inches as the Houghton and Lin-Oil cores and still faster as compared to Linseed Oil cores.

EXHIBIT F-2—(Continued)

Results from Table VI show that cores prepared from “Special Solution” and Y-104 require longer drying times at temperatures of 300°F., and 215°F. especially, than do cores dried at 400°F. Temperatures of 500°F. showed slight savings in drying time as compared with 400°F.

Results from Table VII show that variation of the “Special Solution” and Y-104 proportions enables a good control of the degree of friability of the residual core remaining after the casting has been poured. [78]

The variation in formula does not effect the drying time since the water content of the Y-104 and the “Special Solution” are fairly close.

Conclusions:

The curing of cores prepared from “Special Solution”, Y-104, and sand, in CO₂ free ovens can be done in one third the time required for cores of the same size and shape prepared with Houghton Oil and sand. Cores prepared with either Houghton Oil or Lin-Oil cure in the same length of time while cores prepared with Linseed Oil cure more slowly.

The drying time required for cores of various shapes does not correlate with area, volume or weight of the core. Variations in temperature effect the drying rates of the cores, although increases in temperature above 400°F. yield small savings in time. The most desirable drying temperature is 400°F. to 500°F.

EXHIBIT F-2—(Continued)

Varying the proportion of Premix Emulsion to “Special Solution” (i.e., increasing the amount of Y-104 and decreasing amount of “Special Solution”) changes the strength and friability of the cores after they have been exposed to heat, equivalent to that of molten metal present during the pouring of the casting in the foundry.

Signed,

E. H. SPOTSWOOD.

Approved,

L. J. SNYDER.

EHS:lv [79]

EXHIBIT F-3

Special Report No.: R-168

Tech. S 121-38

Date: June 14th 1938

Shell Oil Company
Martinez Refinery

Subject: Core-Min—Emulsion Mixtures

Reference:

Memorandum of Head Office Sales—Asphalt, June 3rd, 1938, entitled “Core-Min—Emulsion”, and memorandum of Mr. G. H. van Senden, June 6th, 1938, entitled “Core-Min-Oil: Ruddle Solution”.

Summary:

In connection with the patent situation relative

to the promotion of Ruddle Solution and emulsified asphalt as binders for core making, it has appeared desirable, and perhaps necessary, to be able to market a single product comprising a mixture of the two materials, or equivalent. A series of experiments have been performed with the object of preparing such a product having satisfactory stability, both by mixing the Ruddle Solution, or sodium silicate solution, with the asphalt emulsion plus auxiliary stabilizing agents and by attempting to emulsify asphalt directly in the Ruddle Solution. No success has been obtained, as all mixtures either coagulate immediately or undergo stratification due to differences in specific gravity of the phases resulting in coagulation within 24 hours.

Discussion:

It has appeared necessary to be able to market a single product equivalent to a mixture of Ruddle Solution and emulsified asphalt, in the proportions of about 9 to 5 by volume, in order to secure patent protection for the recently developed process for making foundry cores. In experimental work to date the two materials have been mixed immediately before use, and the above proportions have been established as approximately the most useful. The experiments described below cover efforts that have been made to manufacture a single product satisfactory for this use.

The first method of attempting to produce a satisfactory mixture was to mix the Ruddle Solution into asphalt emulsions to which various stabilizers

had been added and observe the effects of mixing and settling. Three asphalt emulsions were used: regular Y-104, a special neutral premix emulsion, and a special penetration-type emulsion, the latter two of which were prepared in connection with earlier stages of the Core-Min investigation and described in Martinez Refinery letter of February 1st, 1938, entitled "substitute for Core Oil". [80]

Nine volumes of Ruddle Solution were mixed into five volumes of each asphalt emulsion, both without further stabilization and after the addition of the following stabilizing agents:

1. 0.8% rosin soap (twice the amount in regular Colas)
2. 3.0% casein as potassium caseinate (twice the amount in regular Colas Premix)
3. 0.3% Bentonite clay.
4. 1.0% Bentonite clay.
5. 0.4% rosin soap and 0.5% Bentonite clay

Note: The above percentages are based on the original asphalt emulsion.

As described above, eighteen mixtures were made, covering nearly all possible combinations of emulsifying and stabilizing agents within reasonable limits. In a few cases (the neutral premix emulsion when soap was not added, and the penetration-type emulsion plus the higher amount of clay) severe coagulation of the asphalt occurred immediately upon addition of the Ruddle solution. In all other cases the immediate coagulation was slight

to nil. When these mixtures were allowed to stand, stratification began to be visible within not more than two hours in any case. This stratification, or settlement, is due to the great difference in the specific gravities of the asphalt phase (about 1.01) and the aqueous phase (about 1.32). Furthermore, after about 24 hours every mixture had definitely settled into two layers, the upper layer consisting of asphalt largely coagulated so that it could not re-mixed with the aqueous phase.

Several of the above experiments were repeated using 32° Bé sodium silicate solution (water glass) instead of the Ruddle Solution, and exactly the same results were obtained, thus indicating that the other chemicals in the Ruddle Solution were not responsible for the failure to obtain a stable mixture.

It has been estimated that the mixing method as used in these experiments is even more apt to give a satisfactory product than direct emulsification, since the asphalt in the original emulsion is already finely dispersed and stabilized, and also is less liable to coagulation by mixing in the cold than by the action of a colloid mill, especially at elevated temperatures. As verification of this reasoning, Y-104 [81] and Ruddle Solution were mixed and the resulting apparently smooth mixture was immediately run through the Colas mill at the usual temperature of about 170°F. (which is necessary in order that the asphalt shall be sufficiently fluid that the

load on the mill is reasonable). The dispersion was completely destroyed by the mill, a molten asphalt layer and a clear aqueous layer being found in the product.

As a further experiment, Ruddell Solution and 40-50 penetration asphalt were fed to the Colas mill in the same manner as used for the regular production of Colas or Colas Premix. This experiment, also, was a complete failure, as the product consisted of asphalt and aqueous layers, with no emulsification whatever.

Signed

G. E. WARREN

Approved

L. J. SNYDER

GEW:lv [82]

EXHIBIT F-4

Report No.: TAC-226

Tech. Report: S-130-38

June 30, 1938

Shell Oil Company

Martinez Refinery

Subject: Core-Min Oil—Influence of Aluminum and Fluorine in Ruddell Solution.

Author: E. H. Spotswood.

Summary:

The following report covers the work carried out at the Vulcan Foundry in East Oakland, relative

to the determination of the influence of Aluminum and Fluorine present in Core-Min Oil solutions either singly or in combination.

A series of cores and castings were made using solutions prepared with different combinations of the salts contained in regular Ruddle Solution and water glass. During the mixing, molding, and pouring procedures, careful observations were made of each operation in order to detect any possible difference between the various solutions.

Conclusions:

Satisfactory castings have been produced using cores made with sand, Premix Emulsion Y-104 and 32° Baumé water glass. The addition of the salts, Sodium Silicofluoride, and Aluminum Sulphate, to water glass does not appear necessary or beneficial.

References:

Martinez Refinery—T.A.C. April 12, 1938—
“Foundry Experiments with Sodium Silicate as a Core Binder”.

Patent Department—April 26, 1938 “Ruddle Solution for Core Making”.

Head Office Manufacturing May 5, 1938
“Ruddle Solution for Core Making.” [83]

Introduction:

The following report covers the work done at the Vulcan Foundry in East Oakland, relative to the determination of the influence of Aluminum and Fluorine in Core-Min Oil, either singly or in combination.

This particular investigation was undertaken in conjunction with the research program outlined in the memorandum from the Patent Department, April 26, 1938—"Ruddle Solution for Core-Making", and covers Part B-No. 1 of the outlined program.

Part B-No. 1. Determine the influence of Aluminum and Fluorine singly or in combination on suitability of solution for core making.

Presentation:

In order to determine the influence, if any, of the presence of the two salts Sodium Silicofluoride and Aluminum Sulphate in the Ruddle Solution, the following work was carried out:

Procedure:

A series of cores and castings were made using solutions prepared with different combinations of the salts contained in regular Ruddle Solution and water glass. The following solutions were prepared:

Solutions:

1. 32° Baumé water glass
2. 1 part water
3 parts 40° Baumé water glass
2% by weight, based on water, aluminum sulphate
3. 1 part water
3 parts 40° Baumé water glass
2.5% by weight, based on water, Sodium Silicofluoride

The mixtures of sand, solution and emulsion were prepared at the Vulcan foundry in East Oakland and a convenient number of cores were then molded by the core makers regularly employed by Vulcan. After the various cores had been molded using the different mixtures, they were baked in the direct gas oven with the fire off. (The cores are baked with the fire off to insure against harmful influence from CO₂ gas, which tends to soften the core). During the molding of the cores, close observations were made on method of procedure and results obtained. Following are the core mixtures used and the observations made. [84]

Cores Mixtures and Casting Made

1. 4-Two inch Merco-Nordstrom valves #5264

Formula

93% by vol. dry sand

4.5% by vol. 32° Baumé water glass.

2.5 by vol. Y-104 Premix Emulsion

2. 4-Two inch Merco-Nordstrom valves #6481

Formula

93% by vol. dry sand

4.5% by vol. 32° Baumé water glass plus
aluminum sulphate (Solution #2)

2.5% by vol. Y-104 Premix Emulsion

3. 2-Six valve plugs #1736

Formula

93% by vol. dry sand

4.5% by vol. 32° Baumé water glass plus
sodium silicofluride (solution #3)

2.5% by vol. Y-104 Premix Emulsion

Discussion:

Workability of Mixture

In each case, the mixtures of sand, solution, and emulsion appeared satisfactory to the core maker from the standpoint of "feel" and general workability. There was no apparent difference between the three different mixtures.

Sticking in Cope

In each case the mixtures exercised a slight tendency to stick in the cope. (The cope is the upper half of the box which is repeatedly used by the molder to form the shape of the upper half of the core). The tendency to stick in the cope was not very pronounced and appeared to be about equal in each of the mixtures. [85]

Appearance of Baked Cores

In all three batches, the cores were harder on the "drag" side than on the "cope" side. This condition is attributed to the action of the residual CO_2 gas remaining in the oven after the fire has been extinguished. The "drag" side of the core is protected from gassing by the drier, while the cope side is exposed to the existing atmosphere.

The baked cores were considered satisfactory for pouring by the shop foreman and were, therefore, "blackened", (coated with Plumbago-Molasses mixture) placed in the molds, and poured. The pouring of several of the castings were observed and the amount of gas evolved compared with that given off from the same castings using Linseed Oil cores.

Gassing of Cores

The pouring of the four two-inch valves #5264 and the two six-inch plugs #1736 was observed, and in each case the amount of gas given off was estimated to be considerably less than that given off from the same type of casting prepared with Linseed oil.

Finished Casting

The finished castings which were poured using the cores prepared from the several solutions were carefully examined and found to be perfect in every detail. There was no apparent difference between any one of the finished castings, each being smooth finish and free from defects.

Signed

E. H. SPOTSWOOD

Approved

L. J. SNYDER

EHS:C. [86]

EXHIBIT F-5

Report: TAC—#227

Tech. Report S-132-38

Date: June 30, 1938

Shell Oil Company
Martinez Refinery

Subject: Core-Min-Oil—Substitution of Oils Other
Than Asphalt

Author: E. H. Spotswood

Summary:

The following report covers the work performed at the Asphalt Application Laboratory at Martinez Refinery relative to the possibility of substituting oils other than Asphalt Emulsion for use with Ruddle Solution in the preparation of Core-Min Oil.

Several sample cores consisting of sand, emulsified oil and Ruddle solution were prepared in the laboratory using emulsified soluble oil, emulsified bulk distillate and bulk distillate in place of emulsified asphalt. The finished cores were tested for cross bending strength and friability after heating in a muffle furnace. (Test to duplicate heat produced when pouring casting) and compared with results determined for sand, Ruddle solution, and emulsified asphalt.

Conclusions:

The sample cores prepared in the laboratory using sand, emulsified oils, (other than asphalt)

and Ruddle solution showed comparable strength and friability to cores prepared from sand, Ruddle solution and Premix Emulsion Y-104.

On the basis of appearance, and laboratory friability and strength tests, it appears that various emulsified oils *other asphalt* could be used with Ruddle solution for casting work.

Reference:

Patent Department—April 26, 1938 “Ruddle Solution for Core Making”. [87]

Introduction:

The following report covers the work performed at the Asphalt Applications Laboratory at Martinez Refinery in order to determine the possibility of using oils other than emulsified asphalt in conjunction with Ruddle solution for a suitable core binding material for casting work.

This work was done relative to Part B-No. 3 of the research program outlined at the meeting of April 22, 1938, (see above reference), which part read as follows:

Part B-No. 3 Investigate oils other than asphalt.

Presentation:

Three series of cores were prepared using various oils available at Martinez Refinery, (other than asphalt) sand and Ruddle Solution. The core mixtures were prepared, molded into bars 1" x 1" x 8" long and baked in the indirect gas oven for 10 minutes at 400°F. The baked cores were tested for friability and cross bending strength. A series of

cores were also prepared using sand, Ruddle solution and Premix Emulsion Y-104 for comparison purposes.

Following in Table I are the several core mixtures prepared, baked, and tested. The oil emulsions were prepared by simple agitation in the laboratory and were sufficiently stable for the purposes of this test.

TABLE I

Core Mixtures Prepared

Batches	1	2	3	4
Components.....	Percentage by volume			
Dry Sand	93.00	93.00	93.00	93.00
Ruddle Sol. 32° Be'.....	4.50	4.50	4.50	4.50
E-614 Sol. Oil	1.25			
Twitchell's Base		0.32		
Bulk Dist. S.S.U. 80/210°F.		0.03	1.50	
Distilled water	1.25	1.25	1.00	
Premix Emulsion Y-104.....				2.50

Cross Bending Strength

An apparatus similar to that specified by the American Foundry Association for determining cross bending strength was used. The machine consists mainly of a beam which can be loaded [88] by letting lead shot fall into a catch bucket at a specified rate. The beam applies a load to the center of the test member (core 1" x 1" x 8") which is mounted upon supports at 6 inch centers. The test, in effect, is applying a concentrated load to the center of a beam mounted on supports 6 inches apart.

Following in Table II are the strengths determined.

TABLE II

Cross Bending Strength

Baking: Indirect gas oven—10 min. @ 400°F.

Batch	Ultimate strength (lbs.) Cross bending
1.....	31.2
2.....	28.5
3.....	29.4
4.....	26.5

Friability

To obtain an indication of the degree of friability which the cores may be expected to have after actual casting in the foundry, the laboratory cores were baked for 15 minutes in the muffle furnace at 1500°F. This test is a fair approximation of the degree of heating and conditions present at the foundry when pouring castings.

In each case, after heating, the cores retained their original shapes but could be easily crushed indicating the cores were sufficiently friable for removal from castings. The degree of friability in each batch appeared the same.

Discussion:

In each case a satisfactory and homogeneous mixture was obtained by simple laboratory mixing. Even in the case of the straight bulk distillate no great difficulty was encountered in mixing, small lumps being at first formed which readily smoothed out.

The strength and friability of the cores prepared from the various oils and Ruddle solution were fully comparable to that of cores made with Premix Emulsion Y-104 and Ruddle solution.

On the basis of the test results it is probable that satisfactory castings could be made using any of the above formulas. Also, although no coal tar emulsions were available, it is understood that they can be made and would in all probability, be fully as satisfactory for this work as asphalt emulsions.

Signed E. H. SPOTSWOOD

Approved L. J. SNYDER [89]

EXHIBIT F-6

Report: TAC-#228

Tech. Report S-131-38

Date: July 1, 1938

Shell Oil Company

Martinez Refinery

Subject: Core-Min-Oil—Miscellaneous Observations

Author: E. H. Spotswood

Summary

In continuing the work on application of Core-Min Oil to foundry core making and casting, various problems have arisen and miscellaneous observations have been made. The following subjects relative to core making have been investigated

either at the Asphalt Application Laboratory or at the Vulcan Foundry in East Oakland.

(a) Water absorption of finished cores

(b) Settling of solution in unbaked cores

(c) Hardening of stock piled Core-Min Oil
—Sand mixture

(d) The minimum shell thickness necessary to protect cores partially baked in electric or indirect gas ovens from attack by CO_2 gas when baked in direct gas ovens.

Conclusions

Water absorption tests on cores made with sand and either Ruddle solution or Sodium Silicate, show similar values.

Unbaked, molded cores left standing over a period of time show no tendency for the Core-Min solution to settle in the cores.

Stock piles of a mixture of sand and Core-Min Oil left standing for a period of time form a hard crust on the surface due to evaporation of water.

Cores baked in ovens free of CO_2 gas for a period sufficiently long to insure a shell thickness of one inch, measured from the outside inward, appear to have sufficient shell protection to permit completing the baking in ovens containing CO_2 gas without detrimental results to the cores.

References

- Martinez Refinery—T.A.C. April 12, 1938—
“Foundry Experiments with Sodium Silicate
as a core Binder”

T. A. C. Report #79—"Substitute for Core Oil"

T. A. C. Report #90—"Substitute for Core oil." [90]

Martinez Refinery—T. A. C. May 26, 1938
—"Core-Min Oil"

Head Office Manufacturing May 3, 1938—
"Core-Min Oil"

Patent Dept.—April 26, 1938—"Ruddle Solution for Core Making"

Special Report #R-168—"Core-Min-Emulsion Mixtures" [91]

Introduction

In continuing the work discussed in T. A. C. Reports 79 and 90 and also in agreement with the program outlined at the meeting of April 22, 1938, further experimental work has been carried out. Incidental to the molding and casting of cores at the Vulcan Foundry and other experimental work at the laboratory, various miscellaneous observations have been made from time to time. These are hereby incorporated into a single report.

Presentation

1. Water absorption of Cores

In order to determine the degree of water absorption of cores prepared from various solutions, a series of two inch cubical cores were prepared, weighed, and placed in a desiccator partially full of water. The following Table V shows the results obtained.

TABLE V
Water Absorption of Cores

		Components—Percent by Volume			
Sample No.	.....	1	2	3	4
Ruddle Solution	.....	7.0	4.25		
Dry Sand	.....	93.0	93.0	93.0	93.0
Y-104 Premix Emulsion			2.75	2.75	
Sodium Silicate	.....			4.25	7.0
Time (days)	.....	0	6		24

Sample No.	Wt. (gr)	% Gain	Wt. (gr)	% Gain	Wt. (gr)	% Gain
1	198	—	200	1.01	200	1.01
2	207	—	208	0.48	208	0.48
3	201	—	202	0.50	202	0.50
4	201	0	202	0.50	203	0.99

Results from the above Table V show that none of the cores exhibit a tendency to absorb water to any appreciable extent. There is no apparent difference in water absorption between cores prepared with either Ruddle Solution or Sodium Silicate. The presence of Premix Emulsion tends to reduce water absorption.

2. Settling of Solution in Unbaked Cores

Cores which have been molded to shape are often placed on racks and left for periods of 24 hours or more before they are baked. In order to determine if there is any tendency for the Core-Min to [92] percolate down through cores molded and left standing for long periods, a batch of small cylindrical cores (1 inch diam. x 3 inches high) were molded and left standing for a period of 22 hours. The following formula was used.

Formula

93.0% by volume dry sand

4.5% by volume Ruddle Solution

2.5% by volume Premix Emulsion Y-104

The cores were examined after 22 hours standing in open air (Vulcan Foundry) and were pronounced satisfactory. There was no sign of settlement of the liquid, the cores appearing equally hard on both top and bottom.

3. Hardening of Stock Piled Core Material

The materials used for core making are mixed in a large roller mill, the minimum capacity of which is two wheel barrow loads or 160 quarts (Vulcan Foundry). These materials are mixed and placed in large rectangular shaped hopper boxes for general consumption and are refilled when necessary. The mixed material is kept workable by placing wet sacks over it for periods as long as three or four days.

Samples of mixtures prepared from Core-Min were stored for 22 hours under wet rags and examined. The stored pipe was found to have crusted over to a depth of one-half inch. It is reasonable to expect that longer periods will yield thicker crusts as cores can be completely dried by leaving in the open air.

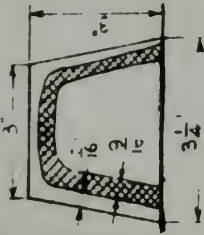
4. Minimum Shell Thickness Necessary to Protect Cores from Gassing

In order to determine, if and how much crust on a core obtained by baking in the absence of CO_2

gas, will protect it from direct gas baking, a series of 3 inch and 4 inch cubical cores were prepared and baked for various intervals of time in the direct and indirect gas ovens at 400°F. The baked cores were sawed in two and examined to determine the effect on baking with the two ovens. The following Martinez Refinery Drawing 1T1-1025 will serve to illustrate the results obtained. [93]

SERIES I (3 Cores)

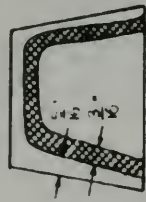
(1)
Indirect Gas
3 Min.
Direct Gas
30 Min.



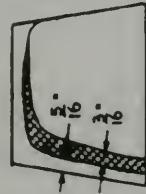
(2)
Indirect Gas
5 Min.
Direct Gas
28 Min.



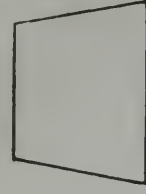
(3)
Indirect Gas
7 Min.
Direct Gas
26 Min.



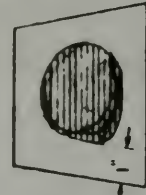
(4)
Indirect Gas
9 Min.
Direct Gas
24 Min.



(5)
Indirect Gas
11 Min.
Direct Gas
22 Min.

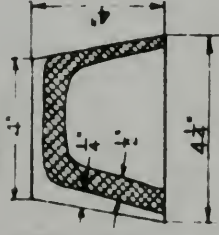


(6)
Indirect Gas
11 Min.

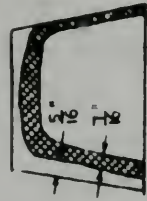


SERIES II (4 Cores)

(1)
Indirect Gas
10 Min.
Direct Gas
40 Min.



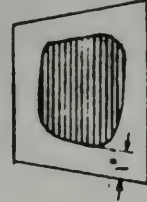
(2)
Indirect Gas
15 Min.
Direct Gas
35 Min.



(3)
Indirect Gas
20 Min.
Direct Gas
30 Min.



(4)
Indirect Gas
20 Min.



Cross Hatched Sections -
Gassed
Sections Hard
Evenly Cured
Sections Still Green.
(Not Thoroughly Cured).



ENG. DEPT.	SHELL OIL CO.	MARTINEZ
EXPERIMENTAL CORE BAKING, CROSS SECTION OF CORES. ASPHALT LAB.		
SCALE	CHK APPR	DATE
DATE	APPROVED	7/1/38
DRAWN	CHECKED	JUN
		ITL 1025-0.

Series I of 3 inch cores were baked a total of 33 minutes in each case. (Total time necessary to thoroughly cure 3 inch cores—T.A.C. #90). The indirect gas baking time was increased in increments of 2 minutes starting with 3 minutes while the direct gas baking time was reduced in the same manner starting with 30 minutes. From the illustrations it is evident that the longer the indirect gas baking time the smaller the gassed shell up to a point (Number 5 core) where either type of heating can be used without detrimental results. Cores Nos. 1 to 4 inclusive show decreased size of gassed shell with increased indirect baking time. Number 5 represented a perfect core and number 6 shows the amount and depth of indirect baking necessary to insure a good core. Series II with 4 inch cores are similar to series I.

From the Martinez Refinery Drawing No. 1TL-1025 it is apparent that the cores bake from outside inward. From the results obtained on cores up to 4 inch cubical size it appears that cores molded and baked in oven free of CO₂ gas for a sufficiently long period to insure a shell thickness of one inch measured from the outside inward and then baked for the balance of the time necessary to insure a thoroughly cured core in direct gas oven appear satisfactory.

Signed E. H. SPOTSWOOD

Approved L. J. SNYDER

EHS:AM [95]

EXHIBIT F-7

Report No.: R-175

Tech: 140-38

Date: July 26, 1938

Shell Oil Company
Martinez Refinery

Subject: Core-Min—Emulsion Mixtures

Author: G. W. Warren

Reference:

Martinez Refinery Special Report No. R-168 (Tech. S 121-38) and Head Office Manufacturing letter, "Core-Min-Oil Emulsion", of June 28, 1938.

Summary:

Further experiments intended to produce a satisfactory stable product containing emulsified asphalt and sodium silicate have been performed, both by mixing emulsion with silicate solutions and by attempting to emulsify asphalt directly in solutions of silicate and emulsifying agents. No satisfactory product has been obtained.

There appear to be two factors responsible for failure to obtain the desired product. These are: (1) difference in specific gravity of asphalt and aqueous phase containing silicate, causing settlement, and (2) loss of emulsifying properties, or even insolubility, of emulsifiers in water containing considerable concentrations of sodium silicate. Each of these difficulties and attempts to overcome them are discussed. To date neither of these has been

corrected, and both must be corrected before a satisfactory product may be obtained.

Conclusions:

No method of preparing the desired product has been found. The usual methods of preparing emulsions at Martinez, and the special means so far suggested for solution of this problem, have shown no promise of a satisfactory solution. It appears that new methods of emulsification must be sought if there is to be a solution to the problem. [96]

Introduction:

In connection with the patent situation relative to the promotion of sodium silicate and emulsified asphalt as binders for core making, it has appeared very desirable to develop a single product equivalent to a mixture of these two materials. Special Report No. R-168 (Tech. S 121-38), issued June 16, 1938, gave the results of a preliminary investigation of this problem, and this report will cover further investigation up to the present time.

Presentation:

Part I—Discussion of the Problems

The work described in the above report has lead to the conclusion that there are two parts to the problem of preparing the desired product. The first part covers the use of an emulsifying agent capable of stabilizing emulsified asphalt particles in a solution containing a considerable concentration of sodium silicate, and the second concerns adjusting the specific gravities of the asphalt and

aqueous phases so that settlement and consequent separation will not occur. Although it has been suggested that separation could be tolerated if coagulation does not occur, so that the product could be remixed before use, it has appeared to date that separation will always result in coagulation. Further, it is doubtful that a product having to be remixed would be satisfactory.

Experimental work to be described in this report has been carried out in an effort to solve the two parts of this problem separately.

Part II—Experimental Work

A—Mixing Emulsions plus Stabilizers with Silicate Solution

As described in the previous report, efforts to mix either soap or casein emulsions, plus additional soap, casein, and clay emulsifying agents, with sodium silicate in the desired proportions (5 volumes emulsion to 9 volumes of 32° Bé. sodium silicate) resulted in separation and coagulation in every case. In order to determine whether smaller amounts or concentrations of sodium silicate in the aqueous phase could be tolerated, several more series of emulsions plus stabilizers were mixed with small amounts of straight 40° Bé. water glass and 40° Bé water glass diluted 1 to 1. In addition, two new stabilizing agents were used in these trials. These were sodium naphthenate soap and Duponol W. A. Flakes (a sodium alkyl sulfate having high emulsifying properties in certain applications). In every case, regardless of combinations of emulsi-

fiers, as little as 4% by volume of water glass in either the straight or diluted form caused visible separation and partial coagulation of the asphalt within three days. These experiments indicated that none of these emulsifiers, at least when used in this manner, are effective [97] in appreciable concentrations of sodium silicate, and also that the settlement of mixtures of asphalt emulsions is very sensitive to changes in specific gravity of the phases.

B—Use of Solutizers

It has been suggested that possibly the emulsifying agents are “salted out” of solution by the sodium silicate and that “solutizers” might be used to prevent this effect. Investigation has disclosed that the emulsifiers are insoluble in the desired high concentrations of sodium silicate, but also that they appear to lose their effectiveness in more dilute solutions in which they are soluble. Several materials have been tried as solutizers (alcohols, ethers, ketones, and esters) but none has shown any promise. The alcohols and ketones precipitate the sodium silicate itself, and the other materials tried were either insoluble in the aqueous phase or ineffective in improving solubilities. In addition, most such agents are also emulsion breakers.

C—Direct Emulsification of Asphalt in Silicate Plus Stabilizer Solutions

In order to determine whether direct emulsification of asphalt in solutions of water glass plus

emulsifier would be more effective, attempts were made to emulsify asphalt in the following solutions.

1. 1% rosin soap, 30% water glass
2. 2% rosin soap, 15% water glass
3. 2% naphthenic soap, 15% water glass
4. 1% Duponol, 50% water glass
5. 2% Duponol, 25% water glass

It was previously determined that the above emulsifier concentrations represented about the maximum solubility for the given water glass concentration. Casein was even less soluble than the above agents. It should be noted that a water glass concentration of 60% would be necessary to obtain the proportions of asphalt, water, and sodium silicate considered most desirable.

Solutions No. 1 and 4 failed to emulsify the asphalt at all, No. 5 gave only a partial emulsion, No. 2 and 3 gave poor emulsions that separated and coagulated badly within a few hours. These experiments indicate that none of the emulsifiers tested are suitable for this application.

D—Mixing Chemical-Type Emulsion with Silicate Solution

Another suggestion was that a “chemical type” emulsion might be more suitable for mixing with water glass. A sample of “Bitumuls” emulsion, known to be of this type, was tried and was found to coagulate upon mixing even more rapidly than the other emulsions studied. [98]

E—Adjustment of Specific Gravities

In order to overcome the separation of the mixtures due to difference in specific gravities of the phases, it was suggested that the asphalt be filled with talc prior to emulsification. Since the desired aqueous phase has a specific gravity of about 1.23, it was necessary to add about 35% talc by weight to the asphalt in order to reach the same gravity. This was tried and the resulting mixture was fed to the Colas mill with a 3% rosin soap solution (3 times the strength used for normal Colas). It was found that much of the talc separated from the asphalt into the aqueous phase, thus losing its effectiveness as a weighing agent. The resulting mixture failed to emulsify.

Further consideration of the idea of weighting the asphalt results in the conclusion that it is probably not practical. Since the particle size of the dispersed asphalt ranges principally from 1 to 5 microns diameter, it appears that the particle size of the filler should be considerably less than 1 micron. Fillers of this size are probably not available commercially, and, in any event, other factors, as preferential wetting and water absorption, would complicate the problem still further.

The use of sodium silicate as a filler, as suggested in the letter of Head Office Manufacturing referred to above, is ruled out by the factors in the above paragraph, provided that the solid form is considered. The use of a sodium silicate solution as filler is impractical, first, because the gravity is too

low to obtain the desired effect without the use of extreme amounts, and, second, because there is no practical method of dispersing such a solution in an asphalt which is very viscous at any practical mixing temperature. In addition, osmotic effects would tend to destroy the effectiveness of any water soluble filler in whatever form used, by the same mechanism as that by which the F. K. viscosity dope works in Colas.

Conclusions:

It has been established that two factors are responsible for the failure to obtain a satisfactory product equivalent to a mixture of emulsified asphalt and sodium silicate solution. These are:

1. Lack of an emulsifying agent effective in strong sodium silicate solution.
2. Difference in specific gravity of asphalt and that of strong sodium silicate solution.

Neither of those difficulties has been overcome by any of the methods tried or suggested to date, and there appears little prospect that either will be solved unless new and better emulsifying agents are found or radically new methods of preparation are discovered.

Signed

G. E. WARREN

Approved

L. J. SNYDER [99]

EXHIBIT F-8

Report TAC #290

Tech. No. S-165-38

Date: August 29, 1938

Shell Oil Company
Martinez Refinery

Subject: Core-Min Oil.

Author: E. H. Spotswood.

Summary:

The following report covers the work carried out at the Asphalt Applications Laboratory and the Vulcan Foundry in East Oakland.

In order to establish the useful limits of the proportions of sand, sodium silicate, and premix emulsion for patent purposes, various series of cores were prepared and tested for strength and friability (strength after ignition). Curves were drawn showing the variables, and limits were established on the curves based on comparison with Linseed Oil mixtures.

Conclusions:

The useful limits for Core-Min-Sand mixtures have been established on the basis of workability, strength and friability (strength after ignition). These limits are intended for use with cores which are to replace cores made with Linseed Oil as a binder.

Martinez Refinery Drawing #1TL-1053 attached on the following page shows the various groups of curves with the limits of useful formulae.

Exhibit F-8—(Continued)

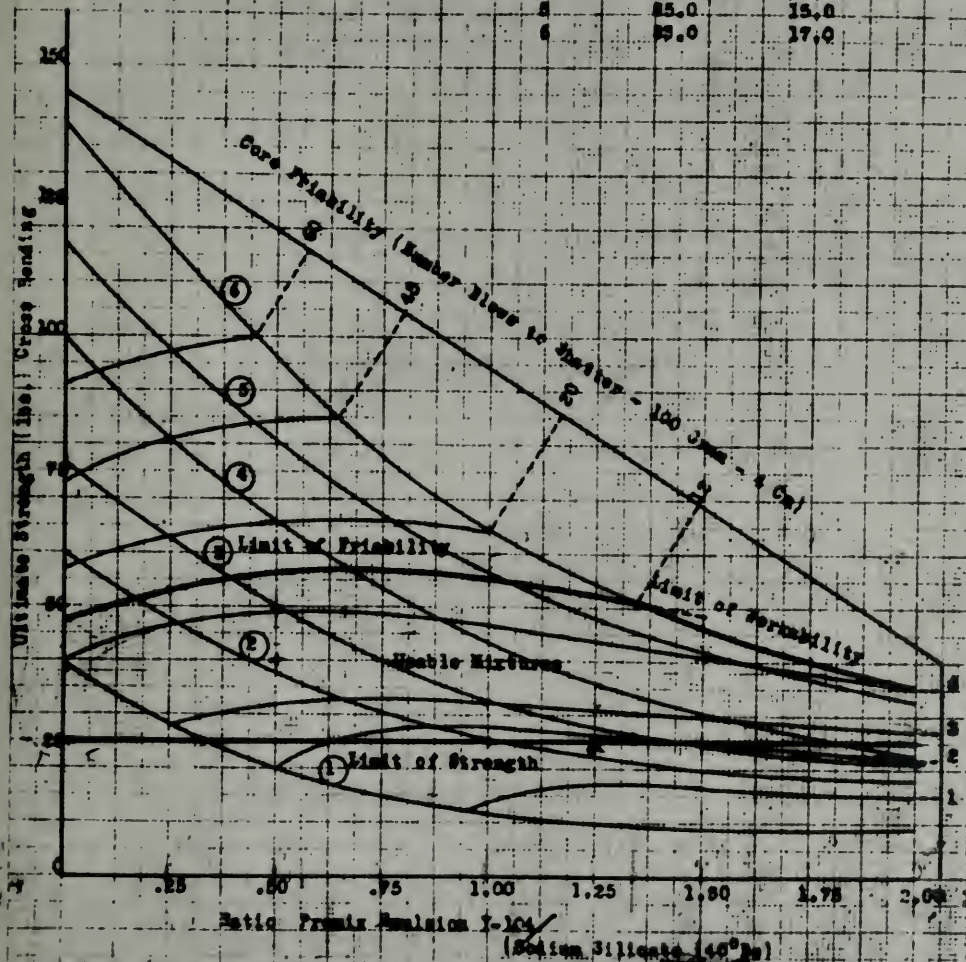
It should be noted that although Core-Min formulas containing 100% Sodium Silicate are included under the friability limit of 12 established for patent purposes, in actual use Premix Emulsion would have to be added to secure the degree of friability (about 2-3) desired at the foundry.

Reference:

Discussion of June 21, 1938 at Martinez Refinery at which Mr. Zublin, Patent Department, and Mr. McSwain, Asphalt Sales, requested that the usable limits of proportions of sand, Premix Emulsion and sodium silicate be established for Core-Min.-Sand mixtures. [100]

1700 - F.

Curve No.	% Sand By Volume	Core Min.
1	97.0	3.0
2	95.0	5.0
3	93.0	7.0
4	89.0	11.0
5	85.0	15.0
6	83.0	17.0



ENG. DEPT. SHELL OIL CO. MARTINEZ

USEFUL LIMITS CORE MIN. OIL MIXED
ASPHALT LABORATORYSCALE:
DATE: 8-10-38
DRAWN: JVV:PS
CHECKED:CHK APP: [Signature]
APPROVED:
17L-1053 - 0

Exhibit F-8—(Continued)

Introduction

In order to establish the limits of the proportions of sand, sodium silicate, and premix emulsion for patent purposes, on the basis of strength and friability, (strength after ignition) it was necessary to determine the strengths and degrees of friability of various Core-Min Sand mixtures at the laboratory and correlate the results obtained with those at the Foundry.

Presentation

In order to determine the strengths of all the workable combinations of sand, sodium silicate, and premix emulsion and to obtain sufficient data to establish a family of curves of various sand to Core-Min proportions, six series of cores 1 x 1 x 8 inch were molded, baked, and tested for cross bending strength. Within each series the ratio of premix emulsion to sodium silicate was varied from 0 to 2 in steps of 0.25. Following are the materials used.

Core Materials

Del Monte sand-fine

Sodium Silicate, 40° Baume

Premix Emulsion Y-104

Procedure

The materials were hand mixed. In each case the proper weight of sodium silicate was added to the sand and thoroughly mixed in. The premix emulsion was then added in the same manner and mixed

Exhibit F-8—(Continued)

in. The core mixtures were then molded into bars 1" x 1" x 8" long and baked in the electric oven at 340-350° F. for the correct time for maximum strength. The baked bars were allowed to cool to laboratory temperature and were then tested for cross bending strength. Three bars were broken for each determination.

Cross Bending Test

An apparatus similar to that specified by the American Foundry Association for determining cross bending strength was used. The machine consists mainly of a beam which can be loaded by letting lead shot fall into a catch bucket. The rate of application of load is 24# per minute. The beam applies a load to the center of the test member (core 1" x 1" x 8") which is mounted upon supports at 6 inch centers.

Correct Baking Time for Maximum Strength

Since each of the six series contain different proportions of sand and Core-Min solution, it was necessary to determine the correct baking time for each sand series. The formula in each series containing 100% sodium silicate in the Core-Min (0 ratio of Premix [102] emulsion to sodium silicate) was used in each case, since that proportion requires the longest baking period and the resultant strengths are higher and fall off faster, therefore making this series of ratios more critical. The following Table I shows the formulas of the several

Exhibit F-8—(Continued)

Core mixtures and the baking time required to reach maximum strength and Martinez Refinery Drawing No. 1TTL-1054 shows the cross bending strength plotted against baking time.

TABLE I
Core Mixtures for
Time-Strength Curves

Curve No.	Ratio Designation	Ratio Emul/Sil.b.v. **	%Dry Sand by vol.	%Core-Min* by vol.	Time for Maximum Strength (Min)
1		0.0	97.0	3.0	15
2	a	0.0	95.0	5.0	20
3	a	0.0	93.0	7.0	20
4	a	0.0	89.0	11.0	30
5	a	0.0	85.0	15.0	35
6	a	0.0	83.0	17.0	35
8	—	0.55	92.0	8.0	20
x	a	0.0	87.0	13.0	30
x	i	2.0	87.0	13.0	25

*Core-Min meaning any workable mixture of sodium silicate and premix emulsion Y-104.

**Note 1—Throughout this report a ratio of 0.0 will indicate 0 parts premix emulsion to 1 part sodium silicate by volume. In like manner a ratio of 0.55 will indicate 0.55 parts premix emulsion to 1.0 part sodium silicate.

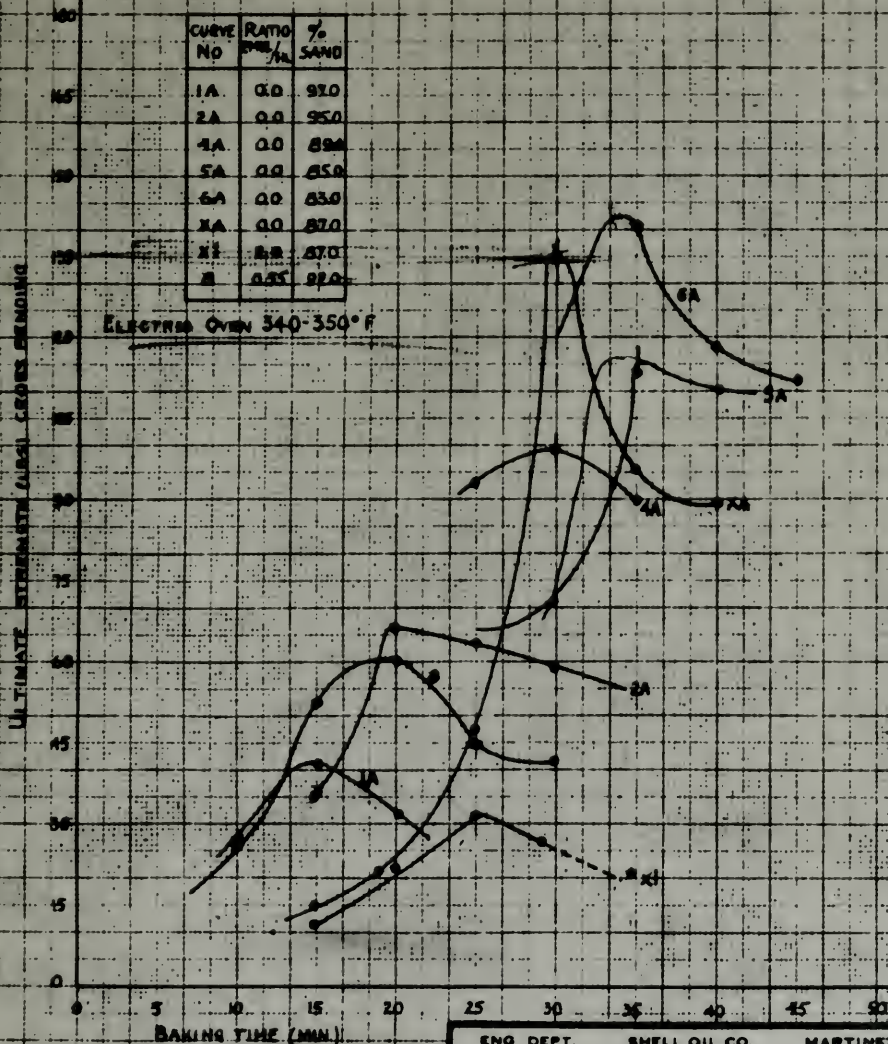
From the above table and Martinez Refinery Drawing number 1TTL-1054 it can be seen that the various series require different baking times depending upon the formulas used. The series with higher percentages of solution and lower percentages of sand (5, 6 and x) rise much more sharply in strength than the lower concentration series. In any one series, xa and xi), the difference in bak-

Exhibit F-8—(Continued)

ing time due to change of ratio of premix emulsion to sodium silicate from 0 ratio (100% sodium silicate) to a ratio of 2.0 (2 parts by volume Y-104 to 1 part sodium silicate) is not over 8 minutes. The baking times for maximum strength were, therefore, chosen on the basis of the zero ratios and are tabulated in Table I.

Series of Strength Curves

As described previously, the mixtures were prepared, molded and baked in the electric oven at 340-350° F. for the correct time for maximum strength. The following Table II shows the formulas and strength for the six series and Martinez Refinery Drawing #1TL-1051 shows the ultimate strengths in pounds, cross bending plotted against the ratios of premix emulsion (Y-104 to sodium silicate 40° Baume). [103]



ENG DEPT. SHELL OIL CO MARTINEZ

BAKING TIME FOR MAXIMUM STRENGTH
ASPHALT LABORATORY

SCALE: 1/2
DATE: 8-10-1938
DRAWN: J.J.V.
CHECKED:

CHK APPR: [Signature]
APPROVED:
ITL-1054-0

Exhibit F-8—(Continued)

TABLE II

Strength Curves

Curve Number		1	2	3	4	5	6
% Core Min (By vol.)		3.0	5.0	7.0	11.0	15.0	17.0
% Dry Sand (By vol.)		97.0	95.0	93.0	89.0	85.0	83.0
Ratio Designation	Ratio Emul/ Sil. by vol.**	Ultimate Strength (Lbs.) Cross Bending					
a	0	39.5	59.1	75.7	98.4	116.1	139.1
b	0.25		47.0	66.2	77.3	100.0	
c	0.50	20.4	36.3	50.1	64.0	81.9	95.4
d	0.75		34.8	39.9	55.5	66.3	
e	1.00	10.8	27.0	32.1	47.2		63.1
f	1.25		27.1	31.5	34.9	49.5	
g	1.50	11.4	21.6	26.4	29.4		44.4
h	1.75		18.3	19.2	27.3	35.1	
i	2.00	9.3	17.7	20.7	22.8	32.1	35.2

From Martinez Refinery Drawing #1TL-1051 it can be seen that the six series form a family of curves with decreasing strength as the ratio of pre-mix emulsion to sodium silicate is increased and increasing strength as the percentage of Core-Min is increased and the percentage of sand reduced.

The limits of investigation were confined to curves 1 to 6 inclusive. Curve 1 was considered as the lowest strength curve which could possibly be used and curve 6 was considered as the highest usable curve from the standpoint of workability. Greater proportions of Core-Min solution in the mixture approached a "sloppy" condition which would be unfit for molding.

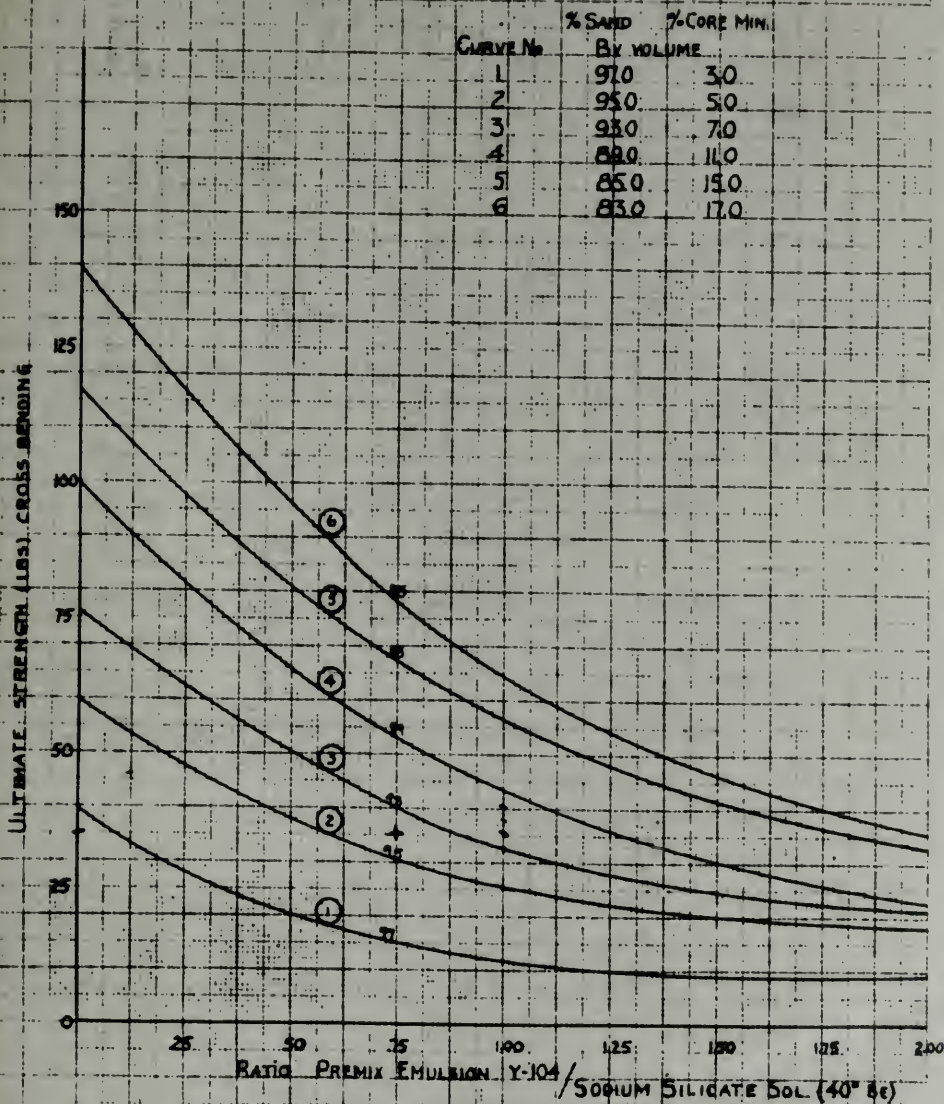
Friability Date (Strength after ignition)

Since the limits of usable mixtures are to be

Exhibit F-8—(Continued)

established on the basis of both strength and friability, samples of cores from each of the various mixtures used in the strength tests were saved and tested for friability. In order to approximate as closely as possible the conditions of pouring at the foundry, the test as described under Friability Test was initiated.

To determine maximum core temperatures when pouring metal at 2600 to 2700°F., thermocouple leads were placed in the center of a core and connected to an automatic Brown recording pyrometer. A complete temperature log was obtained over a 24 hour period from the time of pouring. A maximum temperature of 1800° F. was reached in the core center 15 minutes after pouring. This temperature dropped to 1300°F. in one and one-half hours and thereafter dropped at the rate of 150°F. per hour. [105]



ENG. DEPT.		SHELL OIL CO.		MARTINEZ	
STRENGTH CURVES-CORE MIN MIXES					
ASPHALT LABORATORY					
SCALE:			CHK APPR:		
DATE: 8-9-1936			APPROVED:		
DRAWN: J. J. V.			ITL-1051-0		
CHECKED:					

Exhibit F-8—(Continued)

Further inspection of pouring conditions showed that the core is completely enclosed in the mold, and that air is almost entirely excluded. This condition leaves the carbon (from the ignition of the asphalt during pouring) deposited or mixed in the core after pouring. The presence of the carbon effects the friability (strength after ignition) to a marked extent. The absence of free carbon which could be caused by the combination of the carbon with free oxygen present during pouring would alter the friability.

The test established takes in consideration the effect of temperature and lack of free oxygen.

Friability (Shatter) Test

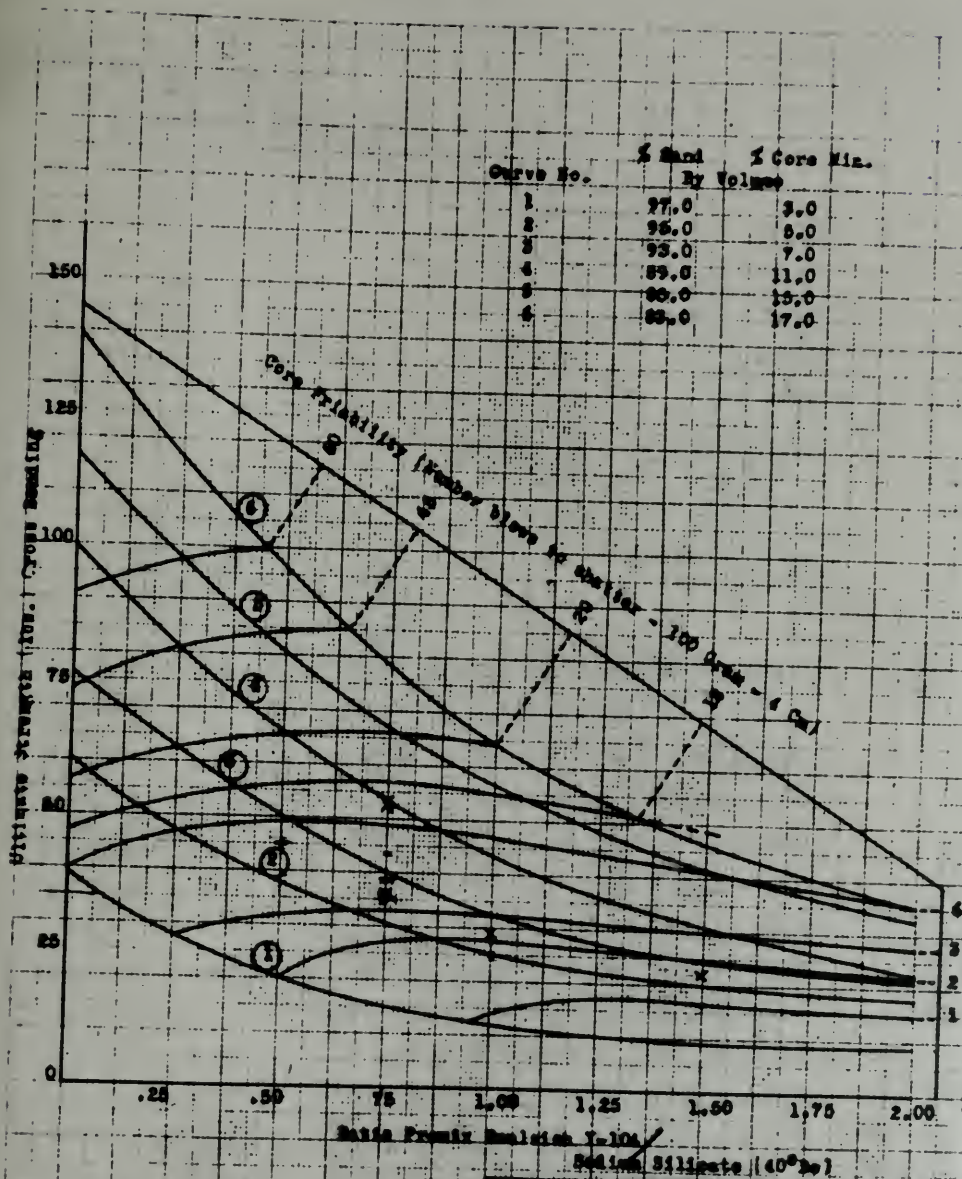
To obtain the degree of friability of each of the mixtures, two one-inch length pieces are cut off each of the bars (1 x 1 x 8 inches) saved and these are placed in 6 oz. penetration tins. The tins are then packed level full with clean sand, the specimens or cores being then completely surrounded by sand. The covers are replaced on the tins and each tin is then carefully baked in the muffle furnace at 1750°F. for thirty minutes. The tins and contents are then allowed to cool to laboratory temperature. Each one inch cubical core is then placed on the steel anvil of the shatter machine. A flat anvil, 3/16" thick by 1" square, (wt. 54 gr.) is placed on top of the specimen. The release of the shatter machine is pressed, which allows a plunger (wt. 100 gram) to fall 4 cm. and strike the top anvil.

Exhibit F-8—(Continued)

The plunger is then returned to its original height and again dropped. This procedure is repeated until the specimen is completely shattered. The number of blows required is recorded as the friability number or strength after ignition. Two determinations were made for each of the various formulas used, except in the case of doubtful values where a third determination was made.

Friability Values

Following in Table III are the friability values (number of blows required to break specimen) obtained for the various mixtures used in Table II and Martinez Refinery Drawing #1TL-1052 shows the ultimate strength in pounds cross bending and the lines of constant-friability plotted against the ratio of premix emulsion Y-104 to sodium silicate (40° Baumé). [107]



ENG. DEPT.	SHELL OIL CO.	MARTINEZ
STRENGTH AND PRIABILITY CORE MIN. MIXED ASPHALT LABORATORY		
SCALE:	DATE: 8-10-36	CHK APPR: JJJ
DRAWN: JJV:PB	CHECKED:	APPROVED:
17L-1052-0		

Exhibit F-8—(Continued)

TABLE III

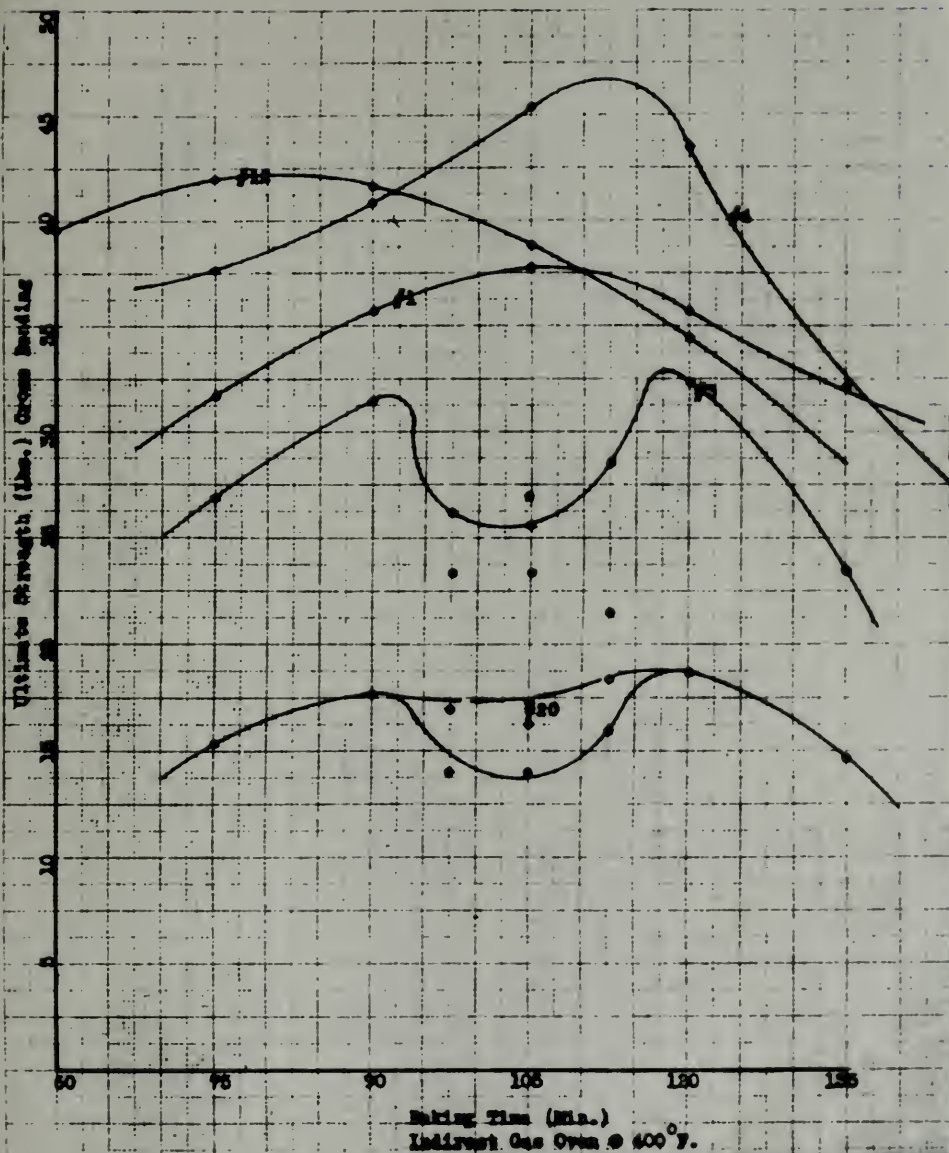
Friability Numbers

Curve Number	1	2	3	4	5	6	
% Core-Min (By Vol.)	3.0	5.0	7.0	11.0	15.0	17.0	
% Dry Sand (By Vol.)	97.0	95.0	93.0	89.0	85.0	83.0	
Ratio Designation	Ratio Emul/** Sil. by vol.	Core Friability (No. Blows)					
a	0.0	6	24	46	150+	—	—
b	0.25	—	6	15	43	60	—
c	0.50	2	4	7	20	49	58
d	0.75	—	2	4	8	16	—
e	1.00	1	2	3	5	—	21
f	1.25	—	1	2	4	11	—
g	1.50	1	2	3	3	—	10
h	1.75	—	2	3	3	9	—
i	2.00	0	1	2	3	6	6

**See Note 1, Page 3.

Correlation with Foundry

In order to establish the limits of the data plotted on Martinez Refinery drawing #1TL-1052 a series of mixtures were obtained at the Vulcan Foundry and tested in the laboratory for strength and friability. The formulas and types of castings produced with the various mixtures obtained were also noted, so that appropriate formulas using Core-Min could be recommended for the same types of castings. The following Table IV gives the formulas, maximum strengths, friabilities, and uses of the mixtures obtained. Martinez Refinery Drawing #1TL-1071 shows the cross bending strength of the Vulcan Foundry mixtures plotted against baking time. The mixture number corresponding to formula in Table IV is noted on each curve. [109]



ENG. DEPT.	SHELL OIL CO.	MARTINEZ
STRENGTH TIME CURVES - VULCAN FOUNDRY		
LINKED OIL - SAND MIXES		
ASPHALT LABORATORY		
SCALE	DATE: August 26, 1938	CHK APPR: J.A.S.
DRAWN: J.A.S.	APPROVED:	17L-1071-C
CHECKED		

Exhibit F-8—(Continued)

TABLE IV

Vulcan Sand Mixes

Sand Mixture No.	Type of Work Used for	Formula	Ultimate Strength (lbs.) (Cross Bending)	Friability (Number Blows)
1	Used on all castings made with driers (drags) except burners and any cast- ings requiring an extra smooth surface.	320 qts. sand (fine) 5 qts. Linseed Oil 11 qts. tux	37.5	1
3	Used on all large castings which are not baked in driers and which do not require high pressures.	240 qts. sand (course) 3 qts. Linseed Oil 14 qts. tux	32.3	1
4	All types of burners	320 qts. sand (course) 8 qts. Linseed Oil	47.0	1
12	Small bodies with sharp grooves and corners (Small Nordstrom bodies)	80 qts. sand (fine) 2½ qts. sandblast 2½ qts. Linseed Oil	42.5	1
20	All large castings requiring pressure	120 qts. sand (fine) 80 qts. sand (extra fine) 6 qts. silica flour 5 qts. Linseed Oil 9 qts. Tanscar	18.0	1

Exhibit F-8—(Continued)

From the Martinez Refinery drawing #1TL-1071 and Table IV it is evident that the cross bending strength and degree of friability of the mixtures used to pour the many varieties of castings made at Vulcan Foundry vary from 18.0 to 47.0 pounds and have zero friability respectively.

Limits of Useful Core-Min Formulas

1. Lowest Proportion Core-Min to Sand

From Table IV, the lowest strength of Linseed Oil mixes is seen to be 20 pounds ultimate strength in cross bending, this being the lowest safe value which should be applied to Core-Min. A value of 25 pounds strength is recommended.

2. Highest Proportion Core-Min to Sand

From the discussion on Table II, the highest proportion of Core-Min to Sand is determined by the workability which value should run not more than 17% Core-Min or equivalent liquid and not less than 83% sand in any case. [111]

3. Strength after Ignition (Friability)

Values of Linseed Oil mixtures, when tested in the manner described on the preceding pages, were in all cases one. This value indicates that the molded specimens after ignition were so friable that they would pour after having been struck one blow. It is desirable in casting work, that the core material after heating hold its shape and remain in the casting through a period of handling and then be in

Exhibit F-8—(Continued)

such a condition that it can be easily removed. It is estimated that a friability number of one to three would attain this condition and would be the desirable value to use in actual foundry work. However, for patent purposes, it is estimated that a limit of twelve friability number be chosen as a suitable value. Castings were made using formulae which gave this value and it is found that the cores could be removed, but with some difficulty.

It should be pointed out that these friability limits apply only to those sizes of cores which are prepared using Linseed Oil mixtures. In very large castings, Linseed Oil is not used and friability is not important, since the castings are usually so large that the workman can remove the spent cores with air-hammers and other similar tools.

Conclusion

Martinez Refinery Drawing #1TL-1053 shows the various groups of curves with the limits of useful formulae based on the above established limits.

Signed,

E. H. SPOTSWOOD.

Approved,

L. J. SNYDER.

EXHIBIT F-9

Private & Confidential

Report: T.A.C. #367

Tech. No. S-188-38

Date: October 27, 1938

Shell Oil Company

Martinez Refinery

Subject: Core-Min Oil—Experimental Emulsions

Author: E. H. Spotswood

Summary:

Relative to the manufacture of a stable mixture of sodium silicate and asphalt emulsion in such proportions to be suitable for core making when mixed with sand, the following experimental mixtures have been tested for their suitability for core making.

I. A series of six experimental emulsions comprised of sodium silicate and various petroleum products prepared by Shell Development Company. These emulsions are of particular interest since they can be manufactured at Martinez Refinery. Further work is being carried out on these and similar mixtures by the Shell Development Company and these mixtures will be tested at Martinez Refinery.

II. A mixture of sodium silicate and a cracked asphalt clay-type emulsion manufactured at Amsterdam and obtained from the Shell Development Company. This type of emulsion can not be manu-

EXHIBIT F-9—(Continued)

factured at Martinez Refinery with the equipment available, but is of interest being a clay-type emulsion.

III. A mixture of sodium silicate and carbon black wherein the carbon black replaces the asphalt in the mixture. The possibility of using this material is of interest as an outlet of products manufactured by the Shell Chemical Company.

Conclusions:

Part I Cores prepared with the series of six experimental emulsions CM-24 to 29 inclusive give reasonably comparable strengths and friabilities to those prepared with Colas Y-104.

All the emulsions cream to varying extents upon standing. Those prepared with Gum Tragacanth as emulsifier appear least viscous and most workable. The emulsion prepared with sodium silicate and Albino asphalt appears good from the standpoint of cleanliness.

Part II Cores prepared with Amsterdam emulsion and sodium silicate showed moderately higher strengths and lower friabilities than equivalent Colas mixes. [112]

The workability of the Amsterdam emulsion is somewhat poorer than that of Colas from the standpoint of molding and cleanliness, and the mixture of emulsion and silicate cream after several days standing.

Part III The substitution of carbon black for asphalt does not appear promising due to lower

EXHIBIT F-9—(Continued)

strength and very poor workability. [113]

Introduction:

Further to the research program being carried out at Shell Development Company to prepare a stable mixture of sodium silicate and asphalt emulsion in such proportions to be suitable for core making, a series of products were prepared by Shell Development Company and tested at Martinez Refinery for strength and friability.

Presentation:

Various points were chosen from Martinez Refinery Drawing No. 1TL-1053 (Refer T.A.C. Report #290) in order to obtain a variation of formula, strength and friability. Equivalent mixtures were then prepared using sand and the various emulsions submitted.

Following are the various mixtures prepared, the strength and friability results obtained, and observations on the workabilities.

Part I Sodium Silicate—Petroleum Product Emulsions

Following is the list of the six experimental emulsions prepared with the laboratory colloid mill at Shell Development Company, and the percentage composition by weight of each.

EXHIBIT F-9—(Continued)

TABLE I.

Experimental Core-Min Emulsions

Colloid Mill Sample No.	CM-24	CM-25	CM-26	CM-27	CM-28	CM-29
Components	% by Weight Components					
10% Emulsone B in water (0.1% Formalin).....	23.0		23.0	21.5	29.2	
10% Gum Tragacanth in 0.1N KOH.....		23.0				23.0
Colas Emulsion (Y-104).....	23.5	23.5		24.0	29.6	
Sodium silicate (32°Be') ¹	53.5	53.5	53.5			53.5
Sodium silicate (42.5° Be') ¹				54.5	41.2	
Albino Emulsion (60% Asph) ²			23.5			
Mixed Lube Crude Feed emulsified with Casein						
61% Oil) ³						23.5

¹Na₂O : 3.36 SiO₂

²Albino Asphalt Pen/77°F=128

³Mixed lube crude feed Visc. S.F./122°F=68

EXHIBIT F-9—(Continued)

Equivalent Mixtures

By calculation CM-24, 25, 26, and 29 were found to have a ratio by volume of emulsion to sodium silicate (32°Bé) of 0.56 which is equivalent to 0.74 ratio, based on sodium silicate (40°Bé). In like manner CM-27 and CM-28 are equivalent to ratios of 0.57 and 0.93 respectively based on sodium silicate (40°Bé). Equivalent mixtures were prepared using sand and emulsions CM-24 to 29 inclusive based on the intersection of Line 3 (T.A.C. Report #290) and the above calculated ratios as based on 40°Bé sodium silicate. The expected strengths and friabilities, based on the use of 40° sodium silicate and Y-104 emulsion, were also obtained from the intersection of the ratios and line 3.

The line chosen (3) should give a formula containing 93% by volume of sand and 7% by volume of Core-Min Oil. However, the equivalent mixtures contained approximately 11% by volume of experimental emulsions and 89% sand due to the greater amount of dilute emulsifier and the lower gravity sodium silicate (in most cases 32°Bé) than equivalent ratios prepared with Colas Y-104 and 40°Bé sodium silicate.

The presence of "extra" water causes some differences in strength and also changes the baking time of the molded cores. Strength and friability values obtained by conversion to equivalent formulas, therefore, are not strictly comparable but give a reasonably close indication.

EXHIBIT F-9—(Continued)

Core Strengths and Friabilities

By trial baking and interpolation, the correct average baking time was estimated to be 20 minutes. Cores were prepared and baked using the several solutions. Following in Table II are the strengths and friabilities obtained using regular test methods (T.A.C. Report No. 290).

TABLE II

Sodium Silicate—Petroleum Product Emulsions

Baking Temperature 350°F (indirect gas oven)

Baking Time 20 minutes

Sample	Experimental Mixtures		Equivalent Colas Mixtures	
	Strength (Lbs.)	Friability (No Blows)	Strength (Lbs.)	Friability (No Blows)
CM-24	31.5	2	40	4
CM-25	30.0	2	40	4
CM-26	33.1	2	40	4
CM-27	28.9	4	48	6
CM-28	20.0	2	34	3
CM-29	49.2	4	40	4

From Table II it is evident that the strengths and friabilities vary considerably from comparative Colas mixtures. This is to be [115] expected since the water content differs considerably and further the points were not determined by means of maximum points on baking curves as was done previously. (The limited amount of sample available prevented this). However, the strengths and friabilities show reasonable values and indicate the material is functioning as desired. (i.e.—asphalt present is creating desired friability).

EXHIBIT F-9—(Continued)

Workability

In all cases the emulsions mixed reasonably well with the sand, giving homogeneous mixtures. Visual inspection showed the mixes to be of uniform color. The emulsions containing Gum Tragacanth as emulsifier mixed slightly easier with the sand than those containing Emulsone B. This difference in ease of mixing can probably be attributed to the lower viscosity of the emulsions prepared with Gum Tragacanth.

All of the mixtures prepared molded with equal ease, the amount of sticking in the mold box being comparable to equivalent Colas mixtures. In like manner the general cleanliness of the mixtures in handling was similar to Colas with the exception of the mixtures prepared using emulsion CM-26 (containing Albino asphalt). In this case the mixture was much cleaner to handle and gave cores of a light yellow color.

In all cases the emulsions creamed after approximately 60 hours standing, a portion of the sodium silicate settling out on the bottom as a clear layer. The layers could be re-emulsified by vigorous shaking.

Part II Amsterdam Emulsion—Sodium Silicate Mixture

Mixtures of Amsterdam emulsion and 40 Bé sodium silicate were prepared and these were mixed with sand, baked, and tested for strength and

EXHIBIT F-9—(Continued)

friability. Following are the percent by weight components of the Amsterdam emulsion and Table III shows the various ratios of Premix emulsion to 40° Bé sodium silicate prepared, the percentage by volume of sand used, and the strengths and friabilities obtained as compared to those obtained using Colas mixtures.

EXHIBIT F-9—(Continued)

Amsterdam Cracked Asphalt-Clay-Type Emulsion	
	% by Weight
Cracked Asphalt (10-20 pen.)	46.0
Clay emulsifier	3.0
Water	51.0

TABLE III

Amsterdam Emulsion—Sodium Silicate Sand Mixes

Sample No.	Ratio Emul./Sil.b.v.	% Dry Sand b.v.	Exp. Mixes		Equivalent Colas Mixes	
			Strength (Lbs.)	Friability (No Blows)	Strength (Lbs.)	Friability (No Blows)
HS-1	0.54	95.8	37.2	1	28	2—3
HS-2	0.82	90.9	60.0	5	42	4—5
HS-3	1.50	85.0	42.5	2	42	6
HS-4	0.50	93.0	50.0	3	50	6

[116]

EXHIBIT F-9—(Continued)

Strength and friability values, determined by establishing baking curves and obtaining the maximum strength points, show the Amsterdam Emulsion-sodium silicate cores to have strengths from equal to 44% higher than equivalent Colas cores, with two to three points lower friability.

Workability

Mixtures of Amsterdam emulsion and 40° Bé sodium silicate showed reasonable good viscosity and ease of handling. The emulsion-silicate mixture spread through the sand reasonably well, and gave fairly homogeneous colored mixtures. An extremely slight spotting could be detected upon close visual observation and microscopic examination showed the asphalt and/or emulsion to be unevenly distributed or not spread out in a thin film. The workability of the finished mixtures was fairly good, the mixtures being somewhat less clean to handle than similar Colas mixes and of the same molding consistency.

The solution of Amsterdam emulsion and sodium silicate creamed after several days standing, a portion of the sodium silicate settling out as a clean layer on the bottom, which could be remixed by shaking.

Carbon Black-Sodium Silicate Mixtures

Mixtures of carbon black and sodium silicate (40° Bé) were prepared replacing the asphalt content of Y-104 previously established by the carbon black.

EXHIBIT F-9—(Continued)

Following are the formulas used and the strengths and friabilities obtained.

TABLE IV

Carbon Black-Sodium Silicate-Sand Mixes.

Sample No.	Ratio Emuls/ Sil. b.v.	% Dry Sand b.v.	Exp. Mixes		Equivalent Colas Mixes	
			Strength (Lbs.)	Friability (No Blows)	Strength (Lbs.)	Friability (No Blows)
CBS-1	0.54	95.8	25	0	28	2—3
CBS-2	0.82	90.9	35	3	42	4—5

Cores prepared with Carbon Black-sodium silicate mixes show strengths of 80-90% of equivalent Colas mixes with about two points lower friability.

Workability

The mixtures of carbon black and sodium silicate did not mix with sand very easily due to poor spreading power, and microscopic examination of the mixtures showed uneven spreading of the carbon particles. The color of the mixed material was uniformly gray. The workability of the finished mix was poor, the material being extremely [117] dirty to handle and exhibiting a strong tendency to stick in the mold box.

4. Carbon Black-Amsterdam Emulsion—Sodium Silicate Mixture

Mixtures of sand, sodium silicate, and equal portions of both carbon black and Amsterdam emulsion sufficient to give quantities equivalent to a ratio of 0.82 were made using 90.9% by volume of sand.

EXHIBIT F-9—(Continued)

The resultant strength and friability of the mixtures was 43.5 and 2.0 respectively, as compared to 48 and 4 respectively for equivalent Colas mixtures.

The finished mixtures exhibited properties of workability intermediate between the carbon black and Amsterdam emulsion mixes for 0.82 ratio previously tested.

Conclusions

Part I Cores prepared with the series of six experimental emulsions CM-24 to 29 inclusive give reasonably comparable strengths and friabilities to those prepared with Colas Y-104.

All the emulsions cream to varying extents upon standing. Those prepared with Gum Tragacanth as emulsifier appear least viscous and most workable. The emulsion prepared with sodium silicate and Albino asphalt appears good from the standpoint of cleanliness.

Part II Cores prepared with Amsterdam emulsion and sodium silicate showed moderately higher strengths and lower friabilities than equivalent Colas mixes.

The workability of the Amsterdam emulsion is somewhat poorer than that of Colas from the standpoint of molding and cleanliness, and the mixture of emulsion and silicate cream after several days standing.

EXHIBIT F-9—(Continued)

Part III The substitution of carbon black for asphalt does not appear promising due to lower strength and very poor workability.

Signed,

E. H. SPOTSWOOD.

Approved,

W. J. YATES. [118]

EXHIBIT F-10

T.A.C. #462

Tech. No. S-212-39

Date: November 30, 1938

Shell Oil Company
Martinez Refinery

Subject: Core-Min Oil—Experimental Emulsions

Author: E. H. Spotswood

Summary:

The following report shows the results obtained on a series of eleven experimental core oil emulsions prepared at Shell Development Company. Included in the report are strength and general workability properties of the emulsions.

Conclusions:

Emulsions prepared with Gum Tragacanth or Emulsone B as emulsifying agents appear too viscous to be readily useable.

Lower Viscosity emulsions such as that prepared

with stearic acid and china clay but containing a greater concentration of sodium silicate (i.e. higher specific gravity) and more Premix Emulsion (Y-104), or its equivalent to adjust for friability, appear desirable in order to improve strength of mixtures in the optimum core oil-sand range (4 to 7% by volume core oil).

The emulsifying and weighing agents, stearic acid and China clay, respectively, appear to be a promising combination in view of the low viscosity emulsion obtained.

The use of the lower viscosity oils appears desirable with respect to ease of mixing emulsion with sand and retardation of drying on the bench.

The use of overhead albino asphalts and extracts appear promising in view of improved color and cleanliness.

The presence of sugar or carbon-black impart friability to the Core-Min Oil-sand mixes. [119]

Introduction:

Further to the research program being carried out at Shell Development Company to prepare a stable emulsion of sodium-silicate and asphalt emulsion, a series of emulsions prepared at Shell Development Company were examined and recommendations were given in order to more nearly approach the desired emulsions.

Presentation:

Since the testing of the last series of emulsions submitted by Shell Development Company (T.A.C.

Report #367), further emulsions have been tested.

Following are the various emulsions tested, and observations noted on some of their important properties.

Sodium Silicate—Petroleum Product Emulsions;
Sodium Silicate—Sugar Solution and Sodium Silicate—Carbon Mixture.

Following is a list of the eleven samples submitted with the percentage by weight of each. [120]

TABLE I
Experimental Core Oils

Sample No.	P-24	25	5	2	7	6	4	16	8	27	17
Components	% by weight Components										
20% b.w. China clay in H ₂ O.....	17.2										
1% b.w. Stearic Acid in H ₂ O (0.2% Dref ¹)	5.7										
5% b.w. Emulsone B in Sod. Silicate (32° Be ²) (0.1% Formalin)		69.4				69.5					
4% b.w. Gum Tragacanth in Sod. Silicate (40° Be ³) (.1% Formalin).....			57.5				57.0				
4% b.w. Emulsone B in Sod. Silicate (40° Be ³) (0.1% Formalin).....				57.0							
5% b.w. Gum Tragacanth in Sod. Silicate (32° Be ²) (0.1% Formalin).....					69.5				69.4		
20% b.w. Bentonite in H ₂ O.....								22.9			
Emulsone B (0.1% Formalin).....										3.2	
Sodium Silicate (32° Be) ²	53.5							53.5		67.8	
Colas Premix Y-104.....	23.5			43.0	30.5	30.5	43.0	23.5			
Albino Emulsion (overhead Dist) ⁴		30.6									
Albino Emulsion (residue) ⁵			42.5								

Table I—(Continued)
Experimental Core Oils—(Continued)

Sample No.	P-24	25	5	2	7	6	4	16	8	27	17
Components	% by weight Components										
Emulsion—cracked residue ⁶									30.6		
Shell Chemical wet carbon (46% H ₂ O)										29.0	
Granulated sugar											46.5
Sodium Silicate (40°Be) ²											53.5
<hr/>											
1. Powdered soap											
2. Sodium Silicate Na ₂ O : 3.22 SiO ₂											
3. Sodium Silicate Na ₂ O : 3.08 SiO ₂											
4. Emulsion—61% overhead furfural extract (s.g.=1.045; Visc.S.S.F.o140°F=1549)											
5. Emulsion—61% residue Duosol extract (s.g.=1.025, Pen/77°F=126)											
6. Emulsion—57% 4.5° A.P.I. Poso cracked residue (Visc.S.S.F./122=537)											

[121]

Equivalent Mixtures

Mixtures of sand and the various experimental core oils were made and these were tested for strength and friability (in two cases). Notes were taken on the general workability of the mixture.

The following Table II shows strengths of all the mixes prepared and friabilities of the carbon black and sugar mixes.

TABLE II
Experimental Core Oils

Baking Temperature 350°F. (indirect gas oven)

Baking Time 20 Minutes

Sample	Experimental mixtures			Equiv. Silicate-Colas Mixtures		
	% b. v. Core Oil Mixed with Sand	Strength (Lbs.)	Friability (No. blows)	% b. v. Core Oil Mixed with Sand	Strength (Lbs.)	Friability (No. blows)
P-24	11.4	24.0	—	7.0	40	4½
P-25	8.7	41.9	—	7.0	40	4½
P-5	7.1	16.0	—	7.0	40	4½
P-2	7.1	19.8	—	7.0	40	4½
P-7	8.7	12.6	—	7.0	40	4½
P-6	8.7	22.5	—	7.0	40	4½
P-4	7.1	13.8	—	7.0	33	3
P-16	11.4	17.1	—	7.0	33	3
P-8	8.7	21.6	—	7.0	33	3
P-27	8.3	28.8	1	7.0	48	6
P-17	4.3	29.1	0	7.0	23	2

The results from Table II show the mixtures to have varying degrees of strengths. In all cases except one (P-17) a greater percentage of core oil was incorporated with the sand (from 0.1% to 4.4% increase) and in all cases except one (P-25) the strength was considerably lower than sand mixture made with sodium silicate (40°Be) and Premix Colas Y-104.

The presence of sugar or carbon-black in place of asphalt in the core oil-sand mixtures produces an action similar to asphalt in producing friability after heating (friability test).

Workability

During the preparation of the various mixes, observations were made on the properties related to workability. The following Table III shows the important properties of the mixtures. [122]

TABLE III

Workability

Sample No.	Base Oil or Emul.	Pouring Consistency	Ease of Mixing With Sand	Color Sand Mix	Homogeneity of Mix	% b.w. Core Oil in Sand Mix	Consistency Sand Mix	Order of Drying on Bench* (10 Min.) (30 Min.) on Hands	Cleanliness
P-24	Y-104	Thin	good	brown	even	9.0	wet	5	4 slightly dirty
P-16	Y-104	Thick lumpy	poor	brown	lumps	9.0	wet	3	3 slightly dirty
P-25	overhead furfural ext.	Viscous just pourable	good	yellow	even	7.0	med.	1	1 clean
P-7	Y-104	Too viscous to pour	fair	brown	even	7.0	med.	4	5 slightly dirty
P-6	Y-104	Too viscous to pour	fair	brown	even	7.0	med.	6	6 slightly dirty
P-8	Cracked Residue	Too viscous to pour	poor	grey	specks	7.0	med.	2	2 fairly dirty

Table III—(Continued)
Workability—(Continued)

Sample No.	Base Oil or Emul.	Pouring Consistency	Ease of Mixing With Sand	Color Sand Mix	Homogeneity of Mix	% h.w. Core Oil in Sand Mix	Consistency Sand Mix	Order of Drying on Bench* (10 Min.)	Cleanliness on Hands (30 Min.)
P-5	Duosol Residue	Too viscous to pour	fair	yellow	even	5.7	dry	9	fairly clean
P-2	Y-104	Too viscous to pour	fair	brown	even	5.7	dry	7	slightly dirty
P-4	Y-104	Too viscous to pour	fair	brown	even	5.7	dry	8	slightly dirty
P-27	Carbon** Black	Too viscous to pour	poor	grey	specks	7.2	med.	-	dirty
P-17	Sugar**	Viscous	poor	white	even	4.2	dry	-	clean

*Small piles of each mixture placed on bench and observed at end of 10 and 30 minutes. #1 denotes least drying (best); #9 denotes most drying (poorest).

**Carbon-rendering materials not included under subject heading.

[123]

Results shown in Table III indicate the following:

(1) Most of the emulsions are too thick to be readily useable, while P-24 is too thin from the standpoint of active materials present. (Formula Table I and low strength with relatively high quantity core oil—Table II).

(2) From the standpoint of ease of mixing the P-25 and P-24 mixtures appear best. Since these are the thinnest emulsions, it appears that a reasonably low viscosity is important for ease of mixing. The viscosity or penetration of the grade of oil used is also undoubtedly a contributing factor.

(3) The homogeneity of the mixtures obtained and the consistency of the sand mix are functions of the quality and concentration of the emulsion respectively.

(4) The rate of drying on the bench appears to be affected by the grade of oil used in the emulsion, the less viscous oils appearing more desirable.

Conclusions

Emulsions prepared with Gum Tragacanth or Emulsone B as emulsifying agents appear too viscous to be readily useable.

Lower viscosity emulsions such as that prepared with stearic acid and china clay but containing a greater concentration of sodium silicate (i.e. higher specific gravity) and more Premix Emulsion (Y-104) or its equivalent to adjust for friability, appear desirable in order to improve strength of mixtures in the optimum core oil-sand range (4 to 7% by volume core oil).

The emulsifying and weighing agents, stearic acid and China clay, respectively, appear to be a promising combination in view of the low viscosity emulsion obtained.

The use of the lower viscosity oils appears desirable with respect to ease of mixing emulsion with sand and retardation of drying on the bench.

The use of overhead albino asphalts and extracts appear promising in view of improved color and cleanliness.

The presence of sugar or carbon-black impart friability to the Core-Min Oil-sand mixes.

Signed

E. H. EPOTSWOOD

Approved

R. W. McORNIE

EHS:HJ [124]

EXHIBIT F-11

Private and Confidential

T.A.C. No. 472

Tech. No. S-214-39

December 15, 1938

Shell Oil Company

Martinez Refinery

Subject: Core-Min-Oil—Effects of CO₂.

Author: E. H. Spotswood.

Summary:

The following report covers the results obtained

Exhibit F-11—(Continued)

on various core baking experiments relating to the effects of the presence of CO_2 gas in the baking ovens. The report has been divided into the following three parts:

Part I. To determine the effects of various concentrations of CO_2 gas in the baking oven on strength of the baked cores.

Part II. To determine the effect of the presence of glycerine, gas oil or clay (contained in the emulsion as a weighting agent) on the strength of the baked cores.

Part III. To determine the effect on strength of pre-drying the cores at room temperature in an atmosphere free of CO_2 gas before baking in an oven known to contain the gas.

Conclusions:

Part I. Experiments show that the decrease in strength of the baked cores is proportional to the amount of CO_2 present. (See Martinez Refinery Drawing #ITL-1121, Curve 1).

To insure completely satisfactory baking results, cores must be baked in ovens entirely free of CO_2 gas.

Part II. The presence of clay (used in the core oil emulsion as a weighting agent) does not appear to retard the action of CO_2 gas on the baked cores.

The presence of glycerine or gas oil (as a coating over the sand-core oil mixture) does not retard the action of the CO_2 gas on the baked cores.

Exhibit F-11—(Continued)

Part III. Pre-drying tends to nullify the action of the CO₂ gas to some extent but does not appear promising from a foundry standpoint. [125]

Introduction:

Previous reports on Core-Min Oil (T.A.C. Reports Nos. 228 and 79) have stated that cores made with Core-Min Oil must be baked in ovens free of CO₂ gas. Possible methods of circumventing this difficulty have been discussed in previous reports.

The purpose of these experiments was the continued investigation of possible methods of baking satisfactory cores in a direct gas oven.

Presentation:

In order to determine the relation between CO₂ gas concentration in the baking oven and strength of the baked core, the following work was carried out:

Part I. Relation of CO₂ to Strength

A small electric oven was rendered as air-tight as possible. A duct for introduction of CO₂ gas from a flask into the oven and another duct for drawing off samples of the oven atmosphere to the gas analyzer were run into the oven. A fan to circulate the gas in the oven was also used. The duct for drawing off the gas analysis samples was located about one inch over the baking cores and intermediate between them.

Two cores (strength bars) were baked in the

Exhibit F-11—(Continued)

oven for each determination, and temperature and CO₂ determinations were made approximately every 3 minutes.

The sodium silicate (40°Bé) and the Premix Emulsion Y-104 were added and mixed separately with the sand. (Duplication of procedure reported in T.A.C. 290).

The following formula was used:

Components	% by Volume
Sand (dry)	93.0
Sodium Silicate (40°Bé)	3.5
Premix Emulsion (Y-104)	3.5

Following in Table I is a typical set of readings obtained for one determination: [126]

TABLE I

CO₂ — Strength — Series — 1

Baking Time (Min.)	Oven Temp. °F.	% CO ₂
0	320	1.6
3	290	2.0
6	294	2.8
10	296	2.6
15	300	2.6
18	305	2.6
20	305	2.6

Bar No.	Strength (lbs.)
(1)	9.6
(2)	10.2

Average Values

Strength (Nos. 1 and 2) lbs.....	9.9
% CO ₂	2.6

Exhibit F-11—(Continued)

The following Table II shows average results of Series 1 to 8 inclusive. Martinez Refinery Drawing #ITL-1121, Curve 1 shows the results graphically.

TABLE II

CO₂—Strength

Baking Time—20 Minutes

Series No.	Oven Temp. °F.	% CO ₂	Strength (lbs.)
1	301	2.6	9.9
2	296	1.6	12.9
3	300	0.0	26.1
4	297	0.8	19.8
5	295	6.6	5.2
6	307	7.0	5.4
7	304	4.0	7.2
8	303	2.6	8.5

[127]

Inspection of Table II and Martinez Refinery Drawing #ITL-1121, Curve 1 will show that the strength decreases quite rapidly with increase in CO₂ content of the baking atmosphere, especially in the low CO₂ concentrations. This curve shows very definitely that even small concentrations of CO₂ gas are not tolerable, since the curve falls off so steeply in the lower concentrations.

Part II Effects of Clay, Glycerine and Gas Oil on Strength

(a) Clay.

Since Shell Development Company has been working on emulsions containing an appreciable

Exhibit F-11—(Continued)

amount of China clay (see T.A.C. Report #462), it was thought that possibly the clay would have a beneficial effect in counteracting the action of the CO₂ gas (possibly as a coating agent).

An emulsion containing clay and having the following formula was tested in a manner similar to that described previously. (Part I).

Exp. Core Oil Emulsion

Components	% by Weight
Sodium Silicate (40° Be').....	46.8
Premix Emulsion (Y-104).....	34.8
China Clay	12.7
2.5% Stearic Acid in H ₂ O (½% Draft).....	1.7
Water (viscosity adjuster)	4.0

Since the above emulsion contains only 81.6% of active ingredients as compared to the materials previously used (sodium silicate and Premix Emulsion Y-104) an extra quantity of core oil was used to compensate for this difference. The following sand-Core Oil mix was prepared:

Components	Formula	% by Volume
Sand (dry)		91.6
Exp. Core Oil Emulsion.....		8.4

[128]

The cores (strength bars) were baked in the electric oven under controlled concentrations of CO₂. Following in Table III are the results obtained.

Exhibit F-11—(Continued)

TABLE III
CO₂—Clay—Strength

Series No.	Oven Temp. °F.	% CO ₂	Strength (lbs.)
1	305	0	23.0
2	305	1.0	14.0
3	305	2.6	8.8

Inspection of Martinez Refinery Drawing ITL-1121, Curve 2 shows the curve plotted from the above data in Table III to be approximately parallel to the curve plotted from Table II data. Since the curve from the above data drops at the same rate as the curve determined using straight sodium silicate and Y-104 (Part I), it is apparent that the clay exerts no influence in nullifying the effects of the CO₂ gas.

(b) Glycerine and Gas Oil.

To determine the effect of glycerine or gas oil on strength in the presence of CO₂, a series of cores were baked using the same core oil and sand mix as used in Part II(a). To the finished mixtures in each case (sand and core oil) glycerine and gas oil were added to the amount of 0.5 and 1.0% by weight on the total mix.

The following Table IV shows the results obtained:

TABLE IV
Formula

Components	% by Volume
Sand (dry)	91.6
Exp. Core Oil Emulsion.....	8.4
Glycerine/or gas oil.....	0.5 and 1.0% by wt. on total mix

Exhibit F-11—(Continued)

Baking Time—20 minutes.

Series No.	Coating Agent	% by wt. on Total	% CO ₂	Strength (lbs.)
1	Glycerine	0.5	1.4	10.0
2	Glycerine	1.0	1.4	7.7
3	Gas Oil	0.5	1.4	9.4
4	Gas Oil	1.0	1.4	8.0

The results from Table IV have been plotted on Martinez Refinery Drawing #ITL-1121 for comparison purposes. It is evident that both the glycerine and gas oil give approximately the same reductions in strength in the 0.5% and 1.0% concentrations. Comparison of these points with curve 2 shows that the glycerine or gas oil effects drops of 2.5 and 4.5 lbs. respectively. Since previous experimental data has established that drops in strength of approximately the magnitude obtained in this case may be expected with 0.5 and 1.0% additions of gas oil in ovens free of CO₂ gas, it is evident that the protective coating mediums have little effect in nullifying the action of the CO₂ gas.

Part III Pre-Drying

The possibility of pre-drying the cores in an atmosphere free of CO₂ gas for a long enough period to build up a crust to protect the cores (See T.A.C. Report #228) appeared promising.

Cores were molded from a mixture having the same formula as that used in Part I. The cores

Exhibit F-11—(Continued)

were laboratory air dried for 24 and 48 hours respectively, and then baked for 20 minutes.

Following in Table V are the test results obtained:

TABLE V

Baking Time: 20 minutes in CO₂ atmosphere.

Sample No.	% CO ₂	Air Drying*	Strength (lbs.)
		Period (Hrs.)	
1	3.0	24	16.5
2	1.0	48	15.0

*Temperature 65-85° F.

[130]

These points have been plotted on Martinez Refinery Drawing #ITL-1121 for comparison. The pre-drying period of 24 hours raises the strength from 9 to 16.5 pounds (Comparison Curve 1), while 48 hours pre-drying lowers the strength from 16.5 to 15 pounds at 1% CO₂. The latter decrease may be caused by over-baking (48 hours air-drying plus 20 minutes in oven) or too much air-drying (See Table VI).

The possibility of using this pre-drying in combination with oven baking in actual foundry use does not appear very promising, in view of the necessity of close control between air and oven drying, the large amount of extra work required in shifting racks, etc., and especially the considerable amount of floor space required.

To test the possibility of 100% air-drying, a series of the same cores were left for varying

Exhibit F-11—(Continued)

periods of time and tested for strength. The following Table VI gives the results obtained:

TABLE VI
Air Dried Strength

Sample No.	Air Drying (1) Period (Hrs.)	Strength (lbs.)	Strength (2) (lbs.)
1	28.5	2.7	26.0
2	46.5	5.1	26.0
3	144.0	5.1	26.0
4	144.0	9.4	26.0
5	144.0	8.7	26.0

(1) Lab. Air Temperature 65-85° F.

(2) Strength baked 20 min. indirect gas oven.

The results from the above Table VI show that the air-dried cores attain only about 36% of the strength of the baked cores.

Conclusions:

Part I. Experiments show that the decrease in strength of the baked cores is proportional to the amount of CO₂ present. (See Martinez Refinery Drawing #ITL-1121, Curve 1). [131]

To insure completely satisfactory baking results, cores must be baked in ovens entirely free of CO₂ gas.

Part II. The presence of clay (used in the core oil emulsion as a weighting agent) does not appear to retard the action of CO₂ gas on the baked cores.

The presence of glycerine or gas oil (as a coating over the sand-core oil mixture) does not retard the action of the CO₂ gas on the baked cores.

Part III. Pre-drying tends to nullify the action

Exhibit F-11—(Continued)

of the CO₂ gas to some extent but does not appear promising from a foundry standpoint.

Signed

E. H. SPOTSWOOD

Approved

R. W. McOMIE

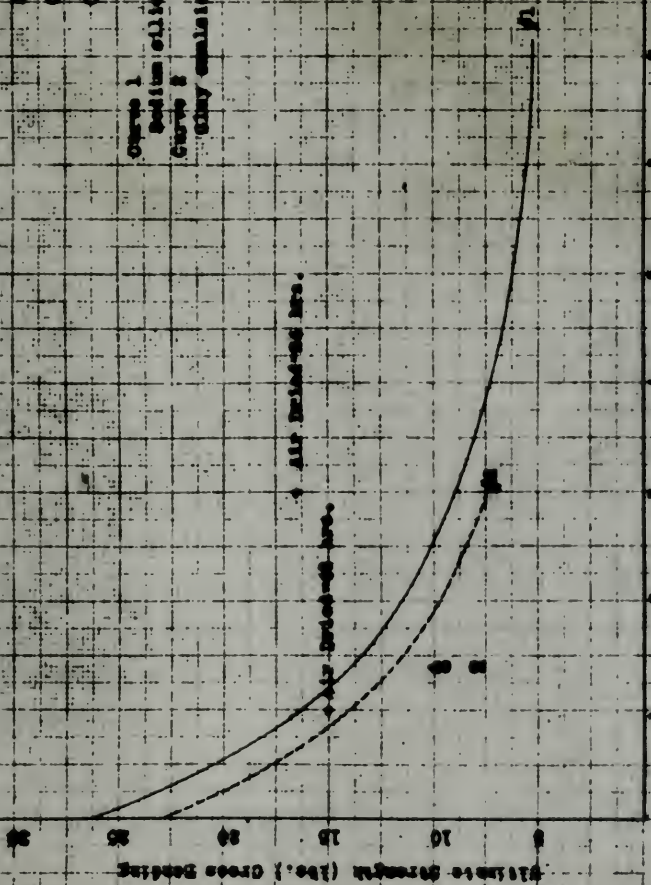
EHS:C. [132]

Results show that maximum
strength is obtained at
medium temperatures only

- ▲ 25 asphalt
- 25 asphalt
- 25 oil
- 105 oil

Curve 1
Sodium chloride - 7-104 - sand

Curve 2
Clay emulsion (mod. sil. 7-104) - sand



100% in Air Drying Oven

ENG. DEPT. SAGELL OIL CO. MARTINEZ

CARBON DIOXIDE-STRENGTH CURVES

DATE: 1-11-59
BY: [Signature]
CHECKED: [Signature]
171-1118-0

EXHIBIT F-12

Shell Oil Company, Incorporated
Martinez Refinery

T.A.C. Report #561

Tech. No. S-241-39

March 23, 1939

Subject: Core Min Oil.

Author: E. H. Spotswood and W. H. Spiri.

Summary:

The following report tabulates the experimental work done and the results obtained on the various Core Oil emulsions prepared by Shell Development Company to date. The work reported herein is a continuation of the work reported in T.A.C. Report No. 462. The data contained in this report represent that portion of the work performed by Messrs. Spiri and Spotswood on the application of the various core oils to foundry practice. The development of the problems encountered at the foundry, i.e. pellet formation, softening of cores due to water absorption, and necessary relations between strength and friability, made it imperative that a considerable portion of the application work be carried out in the laboratory. Preparation of the various experimental core oils was carried out by the staff of the Shell Development Company at Emeryville.

Conclusions:

Foundry experiments indicate that to date a sat-

Exhibit F-12—(Continued)

isfactory core oil emulsion which is workable in the foundry has not been developed.

Core oil emulsions containing 40-50 penetration S. R. asphalt (Y-104) as a base are not satisfactory in that they form pellets when mixed with the sand.

Core oil emulsions containing low viscosity oils as a base are not satisfactory when mixed with sand as they do not meet requirements for both handling strength (toughness of core) and friability after casting.

Experiments show that cores made with Core Oils containing sodium silicate and various combinations of asphalts (or oils) and necessary emulsifying and weighting agents are softened to a varying degree by storage under high relative humidity conditions. Cores made with Core Oil Emulsions containing high penetration asphalts or oils as bases soften to such an extent that they are unfit for casting.

The core oil-sand mixtures containing low penetration asphalts appear most resistant to humid storage conditions and can be used for casting even after exposure to humid conditions.

Impact tests indicate that the penetration asphalts lend more toughness to the cores than low viscosity oils. [134]

Introduction

In continuation of the program being carried out by the Shell Oil Company and the Shell Develop-

Exhibit F-12—(Continued)

ment Company to develop a suitable core oil, further work has been completed since the issuance of the last report (T.A.C. #462).

At the date of writing of T.A.C. Report No. 462, core oil emulsions prepared with sodium silicate and Y-104 and containing stearic acid and china clay as emulsifying and weighting agents respectively appeared promising. A reasonably stable emulsion was made by Shell Development Company using the above mentioned components. (See Emeryville Report #4498).

During the application of this emulsion to foundry practice numerous problems were encountered. Various combinations of oils and sodium silicate were tried out in an attempt to remedy the difficulties encountered. The following report covers the various mixtures investigated.

Presentation:**A. Y-104 Core Oil Emulsion**

Experimental work at Shell Development Company showed that a stable emulsion of Y-104 and 40°Bé sodium silicate could be produced using china clay and stearic acid as weighting and emulsifying agents.

Small sample batches of Core oil emulsion were prepared having the following formula. These samples were not deaired (necessary for complete stability).

Exhibit F-12—(Continued)

Experimental Y-104 Core Oil Emulsion

Components	Per cent by Weight
Sodium Silicate 40° Be' ¹	48.0
Premix Emulsion Y-104.....	35.4
China Clay	10.5
215% b.w. Stearic Acid in Water (1½% Dreft)	1.7
Extra water ²	4.4

(1) Sodium Silicate $\text{NaO}_2:3.22 \text{ SiO}_2$.

(2) Extra water required to dilute to pouring consistency.

Samples were tested in the foundry and appeared to be reasonably satisfactory from the standpoint of mixing and general workability.

On the basis of these results, a large batch (17 gal) of Core Oil emulsion was prepared using a mixer obtained from the Shell Development Company. (Refer Shell Development Company memorandum of January 24, 1939, "Core Min Oil", Sketch #1 Mr. W. H. Spiri to Mr. J. F. McSwain). Samples of this [135] emulsion were then tested at the Vulcan Foundry. It was found that the Y-104 Core Oil emulsion would not mix properly with the sand, as it formed a considerable amount of pellets which could not be dispersed. Since the large batch prepared was not considered as good an emulsion as those prepared in smaller amounts in the laboratory, it appeared that possibly this poorer emulsion might be causing the pellets. The small batches prepared previously in the laboratory were again tested and appeared unsatisfactory as they formed

Exhibit F-12—(Continued)

pellets also. Further test work over a period of about one week showed that the Core emulsions mixed without difficulty immediately after manufacture but deteriorated with time, and after a period of storage would not mix evenly with the sand without forming pellets.

Further work on Y-104 Core Oil emulsions was dropped at this time in view of the undesirable formation of pellets which made it unfit for use.

B. Y-101 Core Oil Emulsion

As a possible method of circumventing the pellet difficulty, it was suggested that a high penetration or low viscosity asphalt be used as the base for the emulsion.

Samples of Core Oil emulsion containing Premix Emulsion Y-101, Sodium Silicate 40° Bé, Stearic acid, and china clay were prepared by Shell Development using a formula similar to that used with Y-104 and these emulsions were tested and found unsatisfactory as they formed pellets in the sand which could not be readily dispersed.

C. SC-2 Road Oil Core Oil Emulsion

Sample core emulsions were prepared using SC-2 road oil as the base oil in the emulsion. Foundry experiments were run on this emulsion and it was found that the emulsion showed a tendency to form pellets in the sand but these could be dispersed due to the low viscosity of the oil. However, this emulsion was found undesirable in view of the fact that a very considerable amount of light ends were

Exhibit F-12—(Continued)

evolved during the baking procedure. These light ends appeared to adversely affect the strength of the cores, the lower sides of certain shaped cores which had been baked in driers appearing soft.

D. Special SC-2 Core Oil Emulsion

In order to obtain an asphalt blend having a viscosity similar to SC-2 road oil and also one which, when incorporated into the core oil emulsion, mixed with sand, and baked would not evolve a considerable amount of light ends. A blend of bulk distillate (S.S.U.=60/210° F.) and Y-10 asphalt was used. Core oil emulsions were prepared using this blend and having the following approximate formula. [136]

Special SC-2 Core Oil Emulsion

Ratio by vol. Premix Emulsion to			
40° Be' sodium silicate.....	0.5	0.75	1.0
Components	% by Weight Components		
Special SC-2 Premix Emulsion*.....	22.2	29.3	34.4
Sodium Silicate (40° Be').....	61.0	53.0	47.3
3.2% b.w. Stearic Acid in water			
(1½% b.w. Drefit)	7.8	6.8	6.1
China Clay	9.0	10.9	12.2

*Premix Emulsion

60% b.w. blend (70% b.w. 60/210 bulk dist. 30% b.w. Y-10)

40% dil soap solution (Rosin Oil Soap & Casein)

Preliminary foundry tests with this material indicated the core emulsions mixed readily with the sand, showed practically no sticking in the mold box,

Exhibit F-12—(Continued)

was clean to handle, and in general appeared promising.

Laboratory tests were then conducted to determine strengths for various core oil-sand mixtures. The minimum workable foundry strength is estimated to be 25# cross bend strength. The following Table I shows strength data.

TABLE I

Special SC-2 Core Oil Emulsion

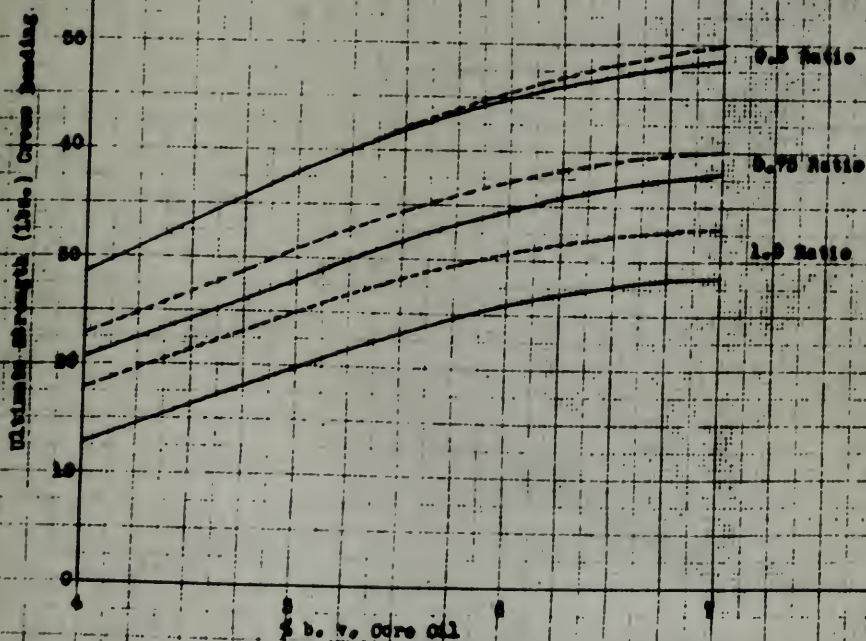
Strengths

Series No.	Baking Temperature		300-310°F.		
	Baking Time		17 min.		
	Mixtures B. V. Sand	Core Oil	Core Oil % B.V.	Ratio B.V. Emul/Sil.	Cross Bending Strength (lbs.)
1	19	1	5.0	0.50	38.1
2	16	1	5.9	0.50	44.4
3	13-2/7	1	7.0	0.50	48.4
4	19	1	5.0	0.75	27.9
5	13-2/7	1	7.0	0.75	38.1
6	19	1	5.0	1.00	19.7
7	13-2/7	1	7.0	1.00	28.6

The following Martinez Refinery Drawing No. 1 TL 1144 shows the results graphically. Comparison of those curves with those established for Premix Emulsion Y-104 and sodium silicate separately (Data from T. A. C. No. 290) which [137] data are consid-

Special 30-2 Core Oil
 T-104 Sodium Silicate
 (TAC Report 200)

Baking Temperature
 200-210°F.



ENG. DEPT.	SHELL OIL CO.	MARTINEZ
STRENGTH - MIX CURVES		
CORE-MIX OIL		
ASPHALT LABORATORY		
SCALE: 25 SHOW	CHK APPR: JAH	
DATE: 5/27/39	APPROVED:	
DRAWN: JAH:CV	17L-1144-0	
CHECKED:		

Exhibit F-12—(Continued)

ered the standard for comparison, shows the special SC-2 emulsion to be lower in strength than the Y-104 silicate mixes especially in the higher ratios. The special SC-2 Core emulsions shows approximately 28% and 11% lower strength for the 1.2 and 0.75 ratios, respectively, as compared to the Y-104 silicate mixes.

Since the strength curves showed reasonably good values, (i.e., above the 25# minimum limit) two batches (0.5 and 0.75 ratio) of the material were prepared at Martinez Refinery in the mixer borrowed from Shell Development Company. A quantity of this emulsion was taken to the foundry and work was begun on a semi-commercial run of castings.

It soon became evident that the baked cores were softening in storage. It was at once suspected that the high relative humidity (rainy weather) prevailing at the foundry at this time was causing the trouble, the cores softening due to absorption of water by the sodium silicate (Hygroscopic). Since the cores became so soft after a period of two or three days as to be unusable, further work at the foundry was stopped and the work again started in the laboratory to determine a remedy for this difficulty.

E. Humidity Effects

In order to investigate the effect of humidity, it was decided to measure the drop in strength over a period of high humidity storage. In each case, six

Exhibit F-12—(Continued)

core bars were baked from each mixture, time and temperature of baking being the same for each bar. Three bars were broken when cool and three bars were stored for 20 hours in a covered flat pan partly filled with water. The relative humidity was estimated to be about 60 to 65% at 70° F. These conditions were established as a reasonable approximation of what might be expected at the foundry and to determine which mixtures might stand up under the above conditions. The apparatus as such, therefore, was not intended to be used for determining small quantitative differences in behavior between the core oil and its various components.

The following results were obtained.

TABLE II

Humidity—Strength Relations

Estimated rel. hum. 60-65% @ 70° F.

* Series No.	Base Oil in Emul.	Type Binder in Sand	Strength (lbs.)		% Drop in Strength
			Cross Bending Original	20HRS.	
1, 7, 14, 18	Sp SC-2	0.5 Core Oil	.....33.7	7.1	79.0
5	Sp SC-2	Sp SC-2 Premix Emul.—40° Be' Silicate Sepa- rate	.....27.3	6.0	78.0
10, 15, 17	Y-104	0.5 Core Oil	.....38.3	10.2	74.0
2, 24, 25	Y-104	Y-104 Silicate, Separately	....46.8	39.0	17.0

*Each series number represents one complete set of six cores.

[139]

Exhibit F-12—(Continued)

Various combinations of bulk distillate (S.S.U. 60/210°F.), 15 and 55 penetration albino asphalts, Y-101, and straight sodium silicate were investigated.

In general, the results of these experiments seemed to indicate that sand mixtures prepared with Premix Emulsion (Y-104 or similar low penetration base asphalts) and sodium silicate separately gave small drops in strength while sand mixes prepared with core oil emulsions containing stearic acid and china clay, or premix emulsion (Made from low viscosity oils) and sodium silicate separately gave poor results. No definite conclusions could be drawn due to variation of test conditions.

To establish the effect on strength of the various components in the core oil emulsions under high humidity storage conditions, equipment was set up at Emeryville. A constant temperature oven containing a pan of water and salts was used in order to obtain a reasonably constant humidity condition without excessive expenditures for equipment.

Various series of tests were performed, the results of which although not entirely in agreement in all cases* seemed to indicate general trends.

In view of the general trends obtained, it was decided to temporarily eliminate the stearic acid and rosin oil soaps from the core oil emulsion. The

*It was found that the humidity varied considerably with external weather conditions (outside the constant temperature oven).

Exhibit F-12—(Continued)

elimination of the stearic acid was also found beneficial in that an adverse thickening action of the emulsion by the stearic acid was eliminated.

Other combinations of core oils including various components such as linseed oil, sulphonated olive and castor oils, 15 penetration albino cutback with naphtha, cobalt naphthenate, and glycerine were investigated for various influences. The net result of the investigation of these components seemed to indicate that the addition of about 2% by weight of glycerine and 1% by weight of sulphonated olive or castor oils might be beneficial from the standpoint of increased resistance to high humidity and better spreading in the sand mix respectively. Although these indications were not definitely conclusive, it was decided to prepare core oils containing these components and test them in the foundry.

F. Foundry Experiments

Emulsions prepared in the 0.5, 0.75, and 1.0 ratios having the following formulas were considered to be the best developed to date.

Ratios	0.5	0.75	1.00
Components	% by Weight Component		
Premix Emulsion (Sp SC-2).....	23.0	29.7	35.0
Sodium Silicate 40° Be'.....	63.5	54.7	48.6
China Clay	10.5	12.6	13.4
Glycerine	2.0	2.0	2.0
Sulphonated Castor Oil.....	1.0	1.0	1.0

[140]

Samples of these emulsions were taken to the foundry for testing. San-Core Oil mixtures were

Exhibit F-12—(Continued)

made using the 0.5, 0.75 and 1.0 ratio core oils. Three cores were made from each of the following job numbers from each mixture, two cores being intended for casting and one for inspection.

3—cores Job. No. 2771 Merco Nordstrom 2" valve

3—cores Job. No. 146 Burner

3—cores Job. No. 5B-8794 Caterpillar Engine part

After baking, the cores were inspected. The burner cores had not knit together (the two halves of the core) and fell apart when handled. The valves and engine parts were sufficiently strong in the 0.5 ratio mixture but were "soft" in the 0.75 and 1.0 ratios. During preparation of the valve cores for casting (blacking process-coat with plumbago solution) the 1.0 ratio cores fell to pieces. The engine part cores and 0.5 and 0.75 valve cores were cast and in all cases the cores were not friable enough to be easily removed from the casting.

These tests showed that the Sp SC-2 Core oil emulsion-sand mixtures obtainable were either too low in strength for handling when the friability was right or not friable enough when the handling strength was satisfactory.

On the basis of these tests, the Special SC-2 emulsion was considered unsatisfactory.

G. Strength and Toughness

Previous preliminary tests (Bi-Weekly Progress Report #89—Jan. 15-31, 1939) had indicated

Exhibit F-12—(Continued)

that possibly the difference in handling strength of cores having approximately the same cross bending strength but different oil components in the emulsions might be due to the viscosity of the oil used. A simple impact test was used and this test showed that the core emulsions made with penetration asphalt had considerably more resistance to impact than the low viscosity oil emulsions.

In order to determine this difference, a weight of 454 grams was dropped vertically through guides varying distances starting at $\frac{1}{2}$ cm and increasing each height of drop by $\frac{1}{2}$ cm until the specimen under test snapped off. The specimen under test consisted of a 2 inch cantilever beam 1" by 1" in cross section (cross bending test cores). The cantilever beams were cores of the various mixtures. The cumulative number of blows (assuming 0.5 cm as unity) was recorded and also the height reached in each case before fracture. Six beams were broken for each determination. The following Table III shows the results obtained. [141]

TABLE III

Core Toughness

Series No.	Ratio b.v. Emul/Sil 40° Be°	Core Oil % b. v.	Base Oil in Emul.	Strength (Lbs.)	Cumula- Height tive No. Energy of fail- Blows Absorbed ure on based/½ GR-CM		
1	0.50	5.50	Y-104*	42.0	3½	14	6356
2	0.50	6.25	SP SC-2	37.8	2	5	2270
3	1.00	5.50	Y-104	29.1	1½	3	1362
4	1.00	6.25	SP SC-2	22.5	½	1	454

*In each case Y-104 and sodium silicate used separately.

Exhibit F-12—(Continued)

Inspection of the above Table III will show that variation of the base oil in the emulsion exhibits a considerable influence on the resistance to impact (toughness). It is, therefore, evident that the resistance to handling of the cores and resistance to failure in the mold box as measured by cross bending strength of the core are a combination of two different influences, the resistance to cross bending being largely determined by the sodium silicate, while the resistance to handling is determined both by the oil component and the silicate component.

Signed E. H. SPOTSWOOD

W. H. SPIRI

Approved C. H. BRITTEN

R-196 [142]

EXHIBIT G

September 6, 1939

Shell Oil Company, Inc.

Shell Building

San Francisco

Gentlemen: Attention Mr. L. G. McLaren

Re—Ruddle & Peck-Shell Oil Co.

CONTRACT OF APRIL 8, 1938

This will acknowledge receipt of your communication of August 18, 1939, together with enclosures mentioned as forthcoming in your communication dated July 26, 1939.

We have referred to our attorneys the entire matter of your above communications and our entire file relating to the negotiations leading to the preparation of, and to the activity under, the contract between your concern and ourselves dated April 8, 1938, as well as a copy of said contract; we have asked our attorneys to consider the same and give us an opinion, with particular reference to the attitude we should take toward said contract and your concern in the light of your said letter of July 26 last.

We have now been advised with regard to our position by our counsel, and are accordingly reaffirming our statement of July 26, 1939, that we wholly refuse to accept your purported "notice of cancellation" as such, and hereby expressly demand that you fully and faithfully comply with each and every term and condition, on your part, of the contract of April 8, 1938, between ourselves, failing which you may rely upon us to take all necessary steps to insure the performance of said contract by you.

It is our impression from the correspondence that by some strange reasoning your administrative division has been directed to conclude that the contract is capable of being canceled, as you put it, "because of entire failure of consideration". This is despite the fact that prior to presentation by yourselves of the contract, as drawn by your Legal Department, your technical staff devoted some three months to the study, analysis and commercial com-

parison of the disclosures of ourselves. We have long possessed copies of the reports made by your technical division prior to the date of our contract with you, in which our product is reported favorably, and the representations made by us with regard thereto are fully substantiated. Problems relating to the sale of the product, particularly the method of packaging, were described by us when we first mentioned the subject to [170] you, and have been the subject of constant study by both your concern and ourselves, pursuant to the provisions of the contract which contemplate improvements conceived for the benefit of the contract by either us or yourselves, from time to time.

Following the favorable technical report independently prepared by yourselves, you submitted a contract to us which, with a single fundamental exception, was executed without modification. We might add, as you were informed at the time, we entered into the contract without benefit of counsel, although from our own meager knowledge of such practices we recognized the presence in the agreement as originally drafted of a lack of protection to us in the event your concern developed a foundry product competitive to that presented by us. In fact, both your representatives and ours discussed and commented on the probability that, as is usual in the development of new products and inventions, improvements would present themselves regularly to those working with the original disclosure, and that, as occasionally happens, radical variations of the

fo

original disclosure, to carry out its intended purposes, might occur. Accordingly, throughout the contract, the same was broadened to provide that our rights, including our right to royalty, should flow not only from the product as actually presented, but also from the product as it might from time to time be improved, during the term of the contract, and in that connection the agreement was re-worded by your representatives, at our request, to provide expressly that we should receive royalty on, and be entitled to exclusive property right in, subject to the license of course, "all products for foundry use" manufactured, used or sold, or caused to be manufactured, used or sold, by your company, during the entire term of the agreement. It was also expressly provided, in this connection, that reference to your company included the inurement of benefits and burdens of the contract to the parent corporation, affiliates and subsidiaries of your organization.

The contract as executed on April 8, 1938, after the intensive examination permitted, contained a clause permitting you to cancel at any time within six months after the execution thereof, whereby you could relieve yourselves of all obligation under the contract. Shortly before the expiration of the six-month option period, your representatives requested and were granted three successive ten-day extensions of the option period, prior to the expiration of the last of which we were duly notified by you that you elected to continue under the contract as originally drawn, and without the benefit of modi-

fication thereof in a manner which had been the subject of some conversation between us in the fall of 1938. [171]

During all of the period from April 8, 1938, to July 26, 1939, with the exception perhaps of a few days just prior to the last mentioned date, your representatives regularly—and by this we mean several times a week—assured us that products falling under the contract were satisfactorily demonstrated by you; that commercial “bugs” were being worked out; and that you were about to perform the diligence clauses of the contract, calling for wide-scale commercialization of the products in which we were interested. The term most frequently used by your representatives was that the products were “ready to be taken east” for marketing.

It was therefore a considerable surprise and shock to us to discover that you have decided at this late date, July 26, 1939, after you have been operating under the contract for at least fifteen months, and have had the benefit of our disclosures for the best part of two years, to repudiate all of your representations and attempt by the truly preposterous methods indicated to relieve yourselves of your legal burdens and duties, presumably in good faith accepted by you under the contract. This was particularly distressing, and impossible of understanding, in the light of the fact that we have known for some time prior to the date of your attempted move toward cancellation, that in the course of working with and developing our product, as provided by the con-

tract, you had made contemporary discoveries which enable you to propose what your employees and representatives described as a product which incorporates all of the advantages of our original disclosure and possesses additional commercial properties of a nature which we had all been seeking. It was recognized by us then for the first time that the whole purpose of your attempt at cancellation—and if we were wrong in this, we trust that you will try to convince us of that fact—was and is to endeavor to retain exclusively for yourselves, without accounting for royalty thereupon to us, and without transferring the same to us upon cancellation, as provided by the agreement, the so-called “new developments” of a commercially competitive product for foundry use, which is clearly our property and is made the subject of accounting under the agreement.

So that this matter may be understood, our information with reference to your development of our product into a form which you seek to retain for your exclusive benefit, despite your obligations under the contract, was fully substantiated by you in your official letter to us dated August 18, 1939, supplementing your so-called “notice of cancellation”.

The above will suffice to give you a brief summary of the facts of the situation, all of which can be fully substantiated from the files of this matter in our possession, from the reports which you have now, belatedly, partially furnished in the manner required by the agreement of April 8, 1938. [172]

We now turn to the matter of our position, and so that there may be no question about that position, we make our demands as follows:

1. That pursuant to the agreement of April 8, 1938, you furnish us at once with a complete transcript of all additional data relating to the subject matter of the contract, and in this connection furnish us with complete technical information on the product referred to by you in the last paragraph of your letter of August 18, 1939;

2. That you promptly withdraw your purported "notice of cancellation" and reaffirm your intentions to proceed in good faith under the agreement of April 8, 1938, now in force and outstanding between us;

3. That you advise us promptly as to what commercial steps you have taken and contemplate taking to develop the subject matter of said contract in a form which will bring about early monetary return to us under the royalty provisions of the contract.

In the event you fail, neglect or refuse to comply with each of the above points, and particularly fail to advise us of your intention to conform to requirement 2 above, we will construe your silence, with your tacit consent thereby, as a deliberate breach of contract, superimposed upon the many breaches thereof heretofore occurring, whereupon please be advised that we will authorize our attorneys promptly to proceed at law and in equity to secure for us all relief to which we may be entitled,

and in that connection to secure a decree of court of competent jurisdiction compelling specific performance of your obligations under the contract, for the full term thereof.

We will expect your full response to the above by September 15, 1939, failing which your silence will be interpreted in the manner indicated.

Yours very truly,

LYDELL PECK

ALLAN B. RUDDLE [173]

EXHIBIT H

Letterhead of
SHELL OIL COMPANY
Shell Building
San Francisco

September 14, 1939

Mr. Allan B. Ruddle
Mr. J. Lydell Peck
Crocker Building
San Francisco, California

Gentlemen:

We wish to acknowledge receipt of your letter of the 6th September, 1939 having reference to our letter to you of July 26, 1939. We have given consideration to the matters set forth in your letter and have not found any reason for our in anywise withdrawing from the position set forth in our let-

ter of the 26th July, 1939. However, it is our desire and intent to give further consideration thereto and when this investigation is completed we will communicate with you further. In the meantime, however, our notice of rescission dated the 26th July, 1939 must stand.

Yours very truly,
SHELL OIL COMPANY,
INCORPORATED
(s) L. G. McLAREN [174]

EXHIBIT I

[Copy]
September 20, 1939

Shell Oil Company, Inc.,
Shell Building
San Francisco, California

Attention Mr. L. G. McLaren

Gentlemen:

This will acknowledge receipt of your letter dated September 14, 1939, wherein you state that while you wish to stand upon your letter of July 26, 1939, in which you attempt to rescind the agreement between your concern and ourselves dated April 8, 1938, nevertheless it is your "desire and intent" to give further consideration to the points raised in our letter of September 6, 1939; and that "when this investigation is completed" you will communicate with us.

We will be pleased to receive any further comments you may care to make, and are of the definite opinion that if you will make a thorough investigation of this matter with the advice and under the direction of your general counsel, you will recognize the justice of our position and the many equities existing in our favor.

While it is our intention to pursue this matter by way of litigation if necessary, we would of course appreciate an amicable disposition of the matter, if you are so inclined.

We repeat we do not acquiesce in your statement, in fact we deny your claim that the contract of April 8, 1938, was without consideration and deny your right to cancel and terminate said agreement.

Will you kindly advise when we may expect further word from you—which we hope will be soon. Please fix the date.

Yours very truly,

ALLAN B. RUDDLE

J. LYDELL PECK

Filed Oct. 25, 1939. [175]

[Title of District Court and Cause.]

DEFENDANTS' ANSWER

Now comes Shell Oil Company, Incorporated, a corporation, and Shell Development Company, a corporation, defendants above named, and by this

answer to the complaint on file in the above entitled cause admit, deny and allege as follows: [176]

I

Answering paragraph I of said complaint, defendants and each of them specifically deny each and all of the allegations in said paragraph contained.

II

Answering paragraph II of said complaint, defendants and each of them admit the allegations in said paragraph contained.

III

Answering paragraph III of said complaint, defendants and each of them admit that diversity of citizenship of the parties to this cause exists, but defendants and each of them allege that the matter in controversy does not exceed, exclusive of interest or costs, or otherwise or at all, the sum or value of Three Thousand (\$3,000.00) Dollars, and therefore deny that the jurisdiction of this court is based on the alleged fact that the matter in controversy exceeds, exclusive of interest and costs, the sum or value of Three Thousand (\$3,000.00) Dollars, or that this court has any jurisdiction of this cause.

IV

Answering paragraph IV of said complaint, defendants and each of them admit the allegations in said paragraph contained.

V

Answering paragraph V of said complaint, defendants and each of them specifically deny each and all of the allegations in said paragraph contained, and in this connection defendants and each of them allege that no alleged confidential disclosure or disclosures of any thing or things was or were at any time or at any place made by or for plaintiffs or either of them to or received from plaintiffs or either of them or acquiesced in by Shell Oil Company, or defendants or any of them, or otherwise or at all. [177]

VI

Answering paragraph VI of said complaint, defendants and each of them admit that on April 8, 1938, Lydell Peck and Allen B. Ruddie granted to Shell Oil Company a license to make, use or sell the thing or things covered by applications for United States Letters Patent Serial Nos. 165,765, 179,150 and 184,237, said Shell Oil Company being a predecessor in interest of defendant herein, Shell Oil Company, Incorporated, and defendants admit that the document annexed to said complaint and marked "Exhibit B" is a copy of such license agreement but defendants and each of them specifically deny each and all of the remaining allegations in said paragraph contained.

VII

Answering paragraph VII of said complaint, defendants and each of them admit that on or about

November 2, 1938, a letter was sent to Mr. R. C. Hackley, Jr., by Bernard J. Gratama reading substantially like "Exhibit C" attached to said complaint, but defendants and each of them specifically deny each and all of the remaining allegations in said paragraph contained.

VIII

Answering paragraph VIII of said complaint, defendants and each of them admit that subsequent to April 8, 1938, and until April 1, 1939, Shell Oil Company, a California corporation, and subsequent to April 1, 1939 but not later than July 26, 1939, Shell Oil Company, Incorporated, made diligent and continuous efforts to manufacture things in accordance with the disclosure of plaintiffs' applications for United States Letters Patent Serial Nos. 165,-765, 179,150 and 184,237, and expended in connection with such efforts a sum in excess of Ten Thousand (\$10,000.00) Dollars, but that such efforts were entirely unsuccessful and demonstrated that such things were [178] unmarketable and a failure; and admit that on or about July 26, 1939 defendant Shell Oil Company, Incorporated, over the signature of L. G. McLaren, a Vice President, at San Francisco, California, notified Allan B. Ruddle and J. Lydell Peck and each of them, of its election to cancel and terminate said license of April 8, 1938 forthwith, and stated that it did, by said letter of July 26, 1939 notify plaintiffs and each of them that said license of April 8, 1938 was "cancelled and termi-

nated'', and in this connection defendants and each of them allege that this letter was sent because the things or any of them covered by applications for United States Letters Patent Serial Nos. 165,765, 179,150 or 184,237 were and are entirely unsuccessful, a practical failure, unmarketable and utterly unsuitable, and were and are of no use or no value to Shell Oil Company or defendants or either of them, or to anyone, or otherwise or at all, but defendants and each of them specifically deny each and all of the remaining allegations in said paragraph contained.

IX

Answering paragraph IX of said complaint, defendants and each of them admit that Lydell Peck and A. B. Ruddle addressed a letter to Shell Oil Company reading substantially like "Exhibit E" but not dated, but defendants and each of them specifically deny each and all of the assertions in said letter contained and each and all of the remaining allegations in said paragraph contained.

X

Answering paragraph X of said complaint, defendants and each of them admit that Shell Oil Company, Incorporated on or about August 18, 1939, wrote a letter to Allan B. Ruddle and J. Lydell Peck and each of them, with which it enclosed a group of reports identified by the numbers and dates indi- [179] cated in such letter, but defendants and each of them specifically deny each and

all of the remaining allegations in said paragraph contained.

XI

Answering paragraph XI of said complaint, defendants and each of them admit that defendant Shell Oil Company, Incorporated, received a letter from Lydell Peck and Allan B. Ruddie dated September 6, 1939, reading substantially like "Exhibit G" attached to said complaint, but defendants and each of them specifically deny each and all of the assertions in said letter contained and each and all of the remaining allegations in said paragraph contained, and in this connection defendants and each of them allege that the license of April 8, 1938 hereinbefore referred to related only to plaintiffs' applications for United States Letters Patent Serial Nos. 165,765, 179,150 and 184,237, and that the true intent of all of the parties to such license at the time such license was signed and at all other times, was that such license related solely to the specific thing or things covered by such applications for United States Letters Patent.

XII

Answering paragraph XII of said complaint, defendants and each of them admit that defendant, Shell Oil Company, Incorporated, wrote to Allan B. Ruddie and J. Lydell Peck, and each of them on or about September 14, 1939, such letter reading substantially like "Exhibit H" attached to said complaint, and that Shell Oil Company, Incorpo-

rated, received from Allan B. Ruddle and J. Lydell Peck a letter dated September 20, 1939, such letter reading substantially like "Exhibit I" attached to said complaint, but defendants and each of them specifically deny each and all of the assertions in said letter "Exhibit I" contained and each and all of the [180] remaining allegations in said paragraph contained.

XIII

Answering paragraph XIII of said complaint, defendants and each of them specifically deny each and all of the allegations in said paragraph contained.

XIV

Answering paragraph XIV of said complaint, defendants and each of them specifically deny each and all of the allegations in said paragraph contained, and in this connection defendants and each of them allege that no alleged confidential disclosure or disclosures of any thing or things was or were at any time or at any place made by or for plaintiffs or either of them to or received from plaintiffs or either of them or acquiesced in by Shell Oil Company, or defendants or any of them, or otherwise or at all.

XV

Answering paragraph XV of said complaint, defendants and each of them specifically deny each and all of the allegations in said paragraph contained.

XVI

Answering paragraph XVI of said complaint, defendants and each of them specifically deny each and all of the allegations in said paragraph contained.

XVII

Answering paragraph XVII of said complaint, defendants and each of them, specifically deny each and all of the allegations in said paragraph contained, and in this connection defendants and each of them allege that no alleged confidential disclosure or disclosures of any thing or things was or were at any time or at any place made by or for plaintiffs or either of them to or received from plaintiffs or either of them or acquiesced in by Shell Oil Company, or defendants or any of [181] them, or otherwise or at all.

XVIII

Answering paragraph XVIII of said complaint, defendants and each of them specifically deny each and all of the allegations in said paragraph contained, and in this connection defendants and each of them allege that the things, or any of them allegedly covered by the applications for United States Letters Patent Nos. 165,765, 179,150 and 184,237, which applications were the only basis for said license of April 8, 1938, were and are entirely unsuccessful, unmarketable, and utterly unsuitable, and of no use or value to anyone.

XIX

Answering paragraph XIX of said complaint, defendants and each of them specifically deny each and all of the allegations in said paragraph contained.

XX

Answering paragraph XX of said complaint, defendants and each of them, specifically deny each and all of the allegations in said paragraph contained.

XXI

Answering paragraph XXI of said complaint, defendants and each of them specifically deny each and all of the allegations in said paragraph contained, and in this connection defendants and each of them allege that they have not, nor has either of them, ever sold any thing or things covered by said applications for United States Letters Patent Serial Nos. 165,765, 179,150 and 184,237, for the reason that such thing or things proved completely unsuccessful and commercially impracticable as heretofore in paragraph VIII hereof alleged and that any attempted sale of such thing or things by defendants or either of them would greatly injure the reputation of defendants, and would be a futile act. [182]

XXII.

Answering paragraph XXII of said complaint, defendants and each of them specifically deny each and all of the allegations in said paragraph contained, and in this connection defendants and each

of them allege that the true intent of all the parties to the license of April 8, 1938 at the time such license was signed and at all other times was that such license related solely to plaintiffs' applications for United States Letters Patent Serial Nos. 165,765, 179,150 and 184,237 and the specific things or any of them covered thereby, all of which subsequently proved to be unsuccessful and a failure, and of no use or value to anyone.

XXIII.

Answering paragraph XXIII of said complaint, defendants and each of them specifically deny each and all of the allegations in said paragraph contained.

XXIV.

Answering paragraph XXIV of said complaint, defendants and each of them specifically deny each and all of the allegations in said paragraph contained.

XXV.

Answering paragraph XXV of said complaint, defendants and each of them specifically deny each and all of the allegations in said paragraph contained.

XXVI.

For a further, separate, and affirmative defense to said complaint, defendants and each of them allege that said complaint, fails to state facts sufficient to constitute a claim upon which relief can be granted.

XXVII.

For a further, separate and affirmative defense to said complaint, defendants and each of them allege that the [183] thing or things covered by applications for United States Letters Patent Serial Nos. 165,765, 179,150 and 184,237 under which Shell Oil Company was licensed by the license agreement "Exhibit B" attached to said complaint constituted the sole thing or things licensed by plaintiffs or either of them, and the sole thing or things with respect to which there was or could be any obligation of performance by Shell Oil Company or defendants or any of them under such license, and that the true intent of all the parties to such license was that any such obligation of performance by Shell Oil Company or defendants or any of them related solely to the thing or things covered by said applications for United States Letters Patent.

XXVIII.

For a further, separate and affirmative defense to said complaint, defendants and each of them allege that the thing or things which constituted the sole basis and consideration for said license as alleged in paragraph XXVII hereof, did not work, although as alleged in paragraph VIII hereof Shell Oil Company and Shell Oil Company, Incorporated, made diligent and continuous efforts to manufacture such thing or things and expended in connection with such efforts a sum in excess of Ten Thousand (\$10,000.00) Dollars, but on the

contrary proved to be a practical failure, unmarketable and utterly unsuitable, and were and are of no use and no value to Shell Oil Company or to defendants or any of them or to any one, or otherwise or at all, and for this reason there was a total failure of consideration for said license.

XXIX.

For a further, separate and affirmative defense to said complaint, defendants and each of them allege that there could have been no confidential disclosure to Shell Oil Company [184] or to defendants or any of them of any thing or things alleged in said complaint to have been developed, discovered or invented by plaintiffs or either of them and alleged to have been disclosed to Shell Oil Company or defendants or any of them and such thing or things could not have been secrets because the thing or things covered by plaintiffs' applications for United States Letters Patent Serial Nos. 165,765, 179,150 and 184,237, or any of them under which Shell Oil Company was licensed by the license agreement Exhibit "B" attached to said complaint or which were otherwise allegedly disclosed by plaintiffs or either of them to Shell Oil Company, or defendants or any of them, were and each of them was known to the public long prior to any alleged disclosure by plaintiffs or either of them to Shell Oil Company, or defendants or any of them, unpatentable, did not teach anything which had not already been taught by the prior art, and

could not be the subject of exclusive appropriation by anyone.

XXX.

For a further, separate and affirmative defense to said complaint, defendants and each of them allege that by said license agreement Exhibit "B" attached to said complaint plaintiffs and each of them represented that they had a thing or things of value and usefulness to license Shell Oil Company, and that such thing or things covered by said applications, Serial Nos. 165,765, 179,150 and 184,237 or otherwise, were patentable, novel and involved invention, whereas such thing or things covered by said applications, or otherwise, were not patentable, not new, and did not involve invention, and nothing was disclosed to Shell Oil Company or defendants or either of them but things which were old in the art, which belonged to the public and which could not be the subject of exclusive appropriation by anyone, and in this connection defendants and each of them [185] allege that no claim or claims have been allowed in said applications except specific, narrow claims devoted to subject matter which is not patentable or new, and which is not of value or usefulness to anyone.

Wherefore, defendants and each of them pray that plaintiffs or either of them take nothing by this suit; that the complaint herein be dismissed; that the defendants have and recover their costs of suit herein incurred, and that defendants and

each of them have such other and further relief as to this court seems proper and fit.

SHELL OIL COMPANY,
INCORPORATED

By CHAS. M. FRYER

Its Attorney

SHELL DEVELOPMENT COM-
PANY

By CHAS. M. FRYER

Its Attorney

CHAS. M. FRYER

ALFRED C. AURICH

Attorneys for Defendants.

(Receipt of Service.)

[Endorsed]: Filed Feb. 21, 1940 [186]

[Title of District Court and Cause.]

Civil Action No. 21390-R

SUBSTITUTION OF ATTORNEYS

We the undersigned, plaintiffs above named, hereby substitute Hackley & Hursh, Roy C. Hackley, Jr. and Jack E. Hursh, as our attorneys in the place and stead of Townsend & Hackley, Chas. E. Townsend and Roy C. Hackley, Jr.

Signed at San Francisco, California, this 15th day of April, 1941.

(s) LYDELL PECK

(s) ALLAN B. RUDDLE

So Ordered:

MICHAEL J. ROCHE

United States District Judge

Receipt of a copy of the above Substitution of Attorneys is hereby acknowledged this 15th day of April, 1941.

(s) CHAS. M. FRYER

Attorney for Defendants.

[Endorsed]: Filed Apr. 16, 1941 [187]

[Title of District Court and Cause.]

REQUEST FOR ADMISSIONS UNDER
RULE 36

Defendants herein hereby request Plaintiffs to make the following admissions for the purpose of this action only, and subject to all pertinent objections to admissibility which may be imposed at the trial:

That on or about March 9, 1940, the plaintiffs herein received from defendant Shell Oil Company Incorporated, a letter, a true and correct copy of which is attached hereto.

Plaintiffs are respectfully requested to answer this request for admissions under Rule 36 within ten (10) days from [188] the date hereof.

Dated: November 19, 1941.

(S) CHAS. M. FRYER

(S) ALFRED E. AURICH

Attorneys for Defendants

Receipt of a copy of the above Request For Admissions Under Rule 36 is hereby admitted this 19th day of November, 1941.

HACKLEY & HURSH
ROY C. HACKLEY, JR.
JACK E. HURSH

Attorneys for Plaintiffs.

[189]

Shell Oil Company
Incorporated
Shell Building
San Francisco

March 8, 1940

Registered Mail

Returned Receipt Requested

Mr. Allen B. Ruddie

Mr. J. Lydell Peck

Crocker Building

San Francisco, California

Gentlemen:

We recently have reviewed the facts concerning our efforts to manufacture and market core oils and other products for related foundry use as disclosed and claimed in the pending applications of Peck and Ruddie, subject to the agreement between yourselves and Shell Oil Company, dated April 8, 1938. The completely discouraging results of this review have confirmed and enhanced our determination to completely abandon all efforts to

manufacture or sell or exploit any kind or type of core oils or other products for related foundry uses.

The time, effort and money heretofore expended by us in attempting to successfully manufacture the products contemplated by the pending applications above mentioned has resulted only in failure and in the development of facts which demonstrate and convince us that the subject matter of the applications is such that it is not susceptible of successful exploitation.

Under these circumstances, termination of the above mentioned agreement is the only course possible. Apparently, however, as indicated by the action recently instituted by your attorneys against us, you question the sufficiency of our previous efforts to terminate the agreement and in spite of the commercial insufficiency of its subject matter, pointed out above, seek some way of continuing it in force.

We therefore not only reiterate the notice of *recision* of agreement given you in our letter of July 26, [190] 1939, but also, pursuant to the terms of paragraph 15 of the agreement, elect to terminate it as of the date provided for in that paragraph. This letter, accordingly, is sent to you to serve as the thirty days written notice of such termination required by the provisions of that paragraph. As you are no doubt aware, such termination of the agreement pursuant to its own terms, may very

possibly precede final determination of the litigation by which you seek to keep it alive.

Very truly yours,

L. G. McLAREN (Signed)

SHELL OIL COMPANY, INCORPORATED

[Endorsed]: Filed Nov. 21, 1941. [191]

[Title of District Court and Cause.]

No. 21390-R.

ORDER

This matter having been submitted for decision, it is Ordered that judgment be entered in favor of defendants and that the action be dismissed as to both defendants, upon preparation of findings of fact and conclusions of law, with costs to be met by plaintiffs.

Dated: February 27, 1942.

MICHAEL J. ROCHE

United States District Judge

[Endorsed]: Filed Feb. 27, 1942. [192]

District Court of the United States
Northern District of California
Southern Division

At a Stated Term of the Southern Division of the United States District Court for the Northern District of California, held at the Court Room thereof, in the City and County of San Francisco, on Friday, the 27th day of February, in the year of our Lord one thousand nine hundred and forty-two.

Present: the Honorable Michael J. Roche, D. J.

No. 21390-R. Civil

LYDELL PECK, et al

vs.

SHELL OIL COMPANY, INC., et al

This cause having been heretofore tried and submitted to the Court for consideration and decision, being now fully considered, and the Court having filed its written order thereon, it is Ordered that judgment be entered herein in favor of defendants, and that the action be dismissed as to both defendants upon findings of fact and conclusions of law to be prepared by the attorneys for the defendant pursuant to the Rules of this Court, and that the defendants have judgment for their costs herein expended. [193]

[Title of District Court and Cause.]

FINDINGS OF FACT AND
CONCLUSIONS OF LAW

The above entitled cause came on regularly to be heard in the above entitled Court on December 2, 1941, and the hearing of said cause was concluded on December 10, 1941, the parties having been represented by counsel. Evidence having been offered by and on behalf of the parties, and the cause having been argued and submitted to the court, and the court, being now fully advised on the premises, upon [194] consideration of the evidence so offered, makes the following findings of fact:

1. Plaintiff Lydell Peck is a resident of the City of Oakland, County of Alameda, State of California, and plaintiff Allan B. Ruddie is a resident of the City and County of San Francisco, State of California.

2. Defendant Shell Oil Company, Incorporated, is a corporation organized and existing under the laws of the Commonwealth of Virginia and having a place of business in the City and County of San Francisco, State of California, and by an agreement of merger dated April 1, 1939 acquired all of the assets and liabilities of Shell Oil Company, a California corporation.

3. Defendant Shell Development Company is a corporation organized and existing under the laws of the State of California and having a place of business in the City and County of San Francisco, State of California.

4. On or about April 8, 1938, Shell Oil Company, the predecessor of Shell Oil Company, Incorporated, entered into a license agreement with Lydell Peck and Allan B. Ruddle under United States patent applications Serial Nos. 165,765, 179,150 and 184,237 relating to a sodium silicate core oil.

5. Shell Oil Company and its successor, Shell Oil Company, Incorporated, diligently attempted to perform all of the terms and conditions of such license agreement.

6. The sodium silicate core oil licensed to Shell Oil Company proved to be a practical failure, unmarketable and of no use or value to any one.

7. There is no evidence whereby any damage or [195] injury, legal or otherwise, can or will result or has resulted to plaintiffs or either of them by virtue of the cancellation by Shell Oil Company, Incorporated of the license agreement of April 8, 1938.

8. At no time was there any confidential disclosure by Lydell Peck or Allan B. Ruddle to Shell Oil Company, the predecessor of Shell Oil Company, Incorporated, or to Shell Development Company, or to any of the employees of such corporations of the idea of employing asphalt emulsion or any petroleum product in or as a core oil.

9. The evidence fails to establish any grounds for the granting of the relief prayed for by plaintiffs.

CONCLUSIONS OF LAW

1. The license agreement between plaintiffs and Shell Oil Company, predecessor of defendant Shell Oil Company, Incorporated, and all of the provisions thereof, are unenforceable because of failure of consideration.

2. The license agreement between plaintiffs and Shell Oil Company, predecessor of defendant Shell Oil Company, Incorporated, is impossible of performance.

3. Shell Oil Company, Incorporated, the successor of Shell Oil Company, was justified in cancelling the license agreement of April 8, 1938.

4. At no time did any confidential relationship exist between plaintiffs and either Shell Oil Company, the predecessor of Shell Oil Company, Incorporated, or Shell Development Company with respect to the use of asphalt emulsion or any petroleum product in a core oil, and [195A] defendants have violated no confidential relationship.

5. The complaint fails to state facts sufficient to constitute a claim upon which relief can be granted against either of defendants.

6. A judgment should be entered dismissing the complaint with costs to defendants.

MICHAEL J. ROCHE,

United States District Judge.

Dated: March 30th, 1942.

[Endorsed]: Filed Mar. 30, 1942. [195B]

In the Southern Division of the United States District Court for the Northern District of California.

Civil Action
File No. 21390-R

LYDELL PECK and ALLEN B. RUDDLE,
Plaintiffs,

vs.

SHELL OIL COMPANY, INCORPORATED, a
corporation, and SHELL DEVELOPMENT
COMPANY, a corporation,
Defendants.

JUDGMENT

This cause having come on regularly to be heard upon the pleadings and proof, documentary and oral, taken and submitted in this cause and being of record herein, plaintiffs being represented by their counsel, Roy C. Hackley, Jr., Esq., and Jack E. Hursh, Esq., and defendants being represented by their counsel, Charles M. Fryer, Esq., Alfred C. Aurich, Esq., and Harold I. Johnson, Esq., and the cause having been submitted to the court for its consideration and decision, and findings of fact and conclusions of law having been made and filed herein, now, therefore, pursuant to such findings of fact and conclusions of law, it is hereby ordered, adjudged and decreed that the complaint herein be and the same is hereby dismissed and that the defendants [196] herein shall have and recover of

and from plaintiffs their costs, charges and disbursements, in this Court to be taxed in the sum of \$753.90 and have execution therefor.

(S) MICHAEL J. ROCHE,

United States District Judge.

Dated: March 30th, 1942.

Approved as to form pursuant to Rule 22.

(S) ROY C. HACKLEY, JR.,

(S) JACK E. HURSH,

Attorneys for Plaintiffs.

[Endorsed]: Filed Mar. 30, 1942. [197]

[Title of District Court and Cause.]

MEMORANDUM OF COSTS AND
DISBURSEMENTS

Clerk's Fees (To be inserted by Clerk).....\$ 10.00
Attorneys' Docket Fee at Final Hearing..... 20.00
Reporter's Fee on Final Hearing..... 255.00
Reporter's Fee on deposition of Allan B.

Ruddle and Lydell Peck 175.40
Notary Fees on taking of depositions..... 90.70
Attorneys' Docket Fee for attendance at
depositions taken and admitted in evidence 5.00

[198]

Witness Fees, subsistence and mileage:

John F. McSwain (Berkeley)

4 days @ \$2.00 per day.....\$ 8.00

Mileage, 40 miles @ 10c per mile..... 4.00

Harry W. Dietert (Detroit, Michigan)		
11 days @ \$5.00 per day.....		55.00
Mileage, 219 miles @ 10c per mile.....		21.90
Grant Warren (Martinez)		
1 day @ \$2.00 per day.....		2.00
Mileage, 35 miles @ 10c per mile.....		3.50
Ernest W. Zublin		
1 day @ \$2.00 per day.....		2.00
W. H. Spiri (San Anselmo)		
1 day @ \$2.00 per day.....		2.00
Mileage, 17 miles @ 10c per mile.....		1.70
William L. Everson (Oakland)		
1 day @ \$2.00 per day.....		2.00
Mileage, 6 miles @ 10c per mile.....		.60
Earl H. Spotswood (El Cerrito)		
3 days @ \$2.00 per day.....		6.00
Mileage, 48 miles @ 10c per mile.....		4.80
Arthur C. Waller (Seattle, Washington)		
8 days @ \$5.00 per day.....		40.00
Mileage, 403 miles @ 10c per mile.....		40.30
Robert B. Harbottle (Berkeley)		
1 day @ \$2.00 per day.....		2.00
Mileage, 10 miles @ 10c per mile.....		1.00
Affidavit on Motion for Continuance.....		.50
Verification to this cost bill.....		.50
Total		\$753.90

Taxed and allowed at \$753.90 over the objections of the attorney for plaintiff to certain items.

Apr. 3, 1942.

WM. J. CROSBY.

State of California,
City and County of San Francisco—ss.

Alfred C. Aurich, being duly sworn, deposes and says:

I am one of the attorneys for the defendants in the above entitled cause, and as such have knowledge of the facts relative to the above costs and disbursements; the items in the above Memorandum contained are true and correct; the said [199] disbursements have been necessarily incurred in the said cause, and the services charged therein have been actually and necessarily performed as therein stated.

(S) ALFRED C. AURICH.

Subscribed and sworn to before me this 1st day of April, 1942.

(Seal) (S) ALFRED D. MARTIN,
Notary Public in and for the City and County of
San Francisco, State of California. [200]
To Lydell Peck and Allan B. Ruddie and to Hack-
ley and Hursh, their attorneys:

You and Each of You, Will Please Take Notice that on Friday, the 3rd day of April, A.D., 1942, at the hour of 9:30 o'clock A.M., defendants above named will apply to the Clerk of the above entitled Court to have the foregoing Memorandum of Costs and Disbursements taxed pursuant to the rule of said Court in such case made and provided.

(S) CHAS. M. FRYER,

(S) ALFRED C. AURICH,

(S) HAROLD I. JOHNSON,

Counsel for Defendants.

Receipt of a copy of the foregoing Memorandum of Costs And Disbursements is hereby acknowledged this day of April, 1942.

HACKLEY & HURSH,
ROY C. HACKLEY, JR.,
JACK E. HURSH,
Attorneys for Plaintiffs.

[Endorsed]: Filed Apr. 1, 1942. [201]

[Title of District Court and Cause.]

CERTIFICATE UNDER 28 U.S.C., SECTION
600-C

As a part of the order of this Court, dated April 13, 1942, denying plaintiffs' Motion to Retax Costs, it is hereby certified, under the provisions of 28 U.S.C., Section 600-C, that defendants' witnesses Dietert and Waller resided so far from this Court as to prohibit their daily return to their respective residences.

MICHAEL J. ROCHE,
United States District Judge.

Dated: April 14, 1942.

[Endorsed]: Filed Apr. 14, 1942. [202]

[Title of District Court and Cause.]

NOTICE OF APPEAL

Notice Is Hereby Given that Lydell Peck and Allan B. Ruddle, plaintiffs in the above entitled action, hereby appeal to the United States Circuit Court of Appeals for the Ninth Circuit from the Judgment entered in this action on March 30, 1942.

Dated this 12th day of June, 1942.

HACKLEY & HURSH,
ROY C. HACKLEY, JR.,
JACK E. HURSH,

Attorneys for Plaintiffs-Appellants, 807 Crocker Building, San Francisco, California.

[Endorsed]: Filed June 12, 1942. [203]

[Title of District Court and Cause.]

BOND ON APPEAL

Know All Men by These Presents:

That Central Surety and Insurance Corporation, a corporation created, organized and existing under and by virtue of the laws of the State of Missouri and authorized to do business in the State of California, is held and firmly bound unto Shell Oil Company, Incorporated, a corporation organized and existing under the laws of the Commonwealth of

Virginia, and Shell Development Company, a corporation organized and existing under the laws of the State of Delaware, defendants in the above entitled cause, in the penal sum of Two Hundred Fifty Dollars (\$250.00), to be paid to the said Shell Oil Company, Incorporated, and Shell Development Company, their heirs, executors and assigns, for which payment well and truly to be made the Central Surety and Insurance Corporation binds itself, its successors and assigns firmly by these presents.

Scaled with the corporate seal and dated this 12th day of June, 1942. [204]

The condition of the above obligation is such that:

Whereas, Lydell Peck and Allan B. Ruddle, plaintiffs in the above entitled cause, are about to take an appeal to the United States Circuit Court of Appeals for the Ninth Circuit to reverse the judgment in the aforesaid suit made and entered on the 30th day of March, 1942;

Now, Therefore, the condition of the above bond is such that if said Plaintiffs, Lydell Peck and Allan B. Ruddle, shall prosecute their appeal to effect, or if they fail to make good said appeal, shall answer all costs adjudged against them by reason thereof, then this obligation shall be void; otherwise to remain in full force and effect.

This recognizance shall be deemed and construed to contain the "Express Agreement" for summary

judgment, and execution thereon, mentioned in Rule 34 of the District Court.

In Witness Whereof the corporate name of said Surety is hereunto affixed by its duly authorized Attorney-in-Fact and Agent at San Francisco, California, this 12th day of June, 1942.

CENTRAL SURETY AND INSURANCE CORPORATION,

[Seal] By A. DOUGLAS MENNIE,
Attorney-in-Fact.

Premium \$10.00 per annum.

State of California,
City and County of San Francisco—ss.

On this 12th day of June in the year one thousand nine hundred and forty-two before me, Emily K. McCorry, a Notary Public in and for the City and County of San Francisco, personally appeared A. Douglas Mennie, known to me to be the person whose name is subscribed to the within instrument as the Attorney-in-Fact of the Central Surety and Insurance Corporation, and acknowledged to me that he subscribed the name of the Central Surety and Insurance Corporation thereto as surety, and own name as Attorney-in-fact.

[Seal] EMILY K. MCCORRY,
Notary Public in and for the City and County of San Francisco, State of California.

My Commission Expires December 30, 1942.

[Endorsed]: Filed June 12, 1942. [205]

[Title of District Court and Cause.]

SATISFACTION OF COSTS

Judgment in the above entitled cause having been entered herein on March 30, 1942 awarding, among other things, costs in favor of defendants and against plaintiffs in the sum of \$753.90 and said sum having been paid by the plaintiffs to defendants, payments for full satisfaction of said costs is hereby acknowledged.

SHELL OIL COMPANY, INC.
SHELL DEVELOPMENT CO.,
By CHAS. M. FRYER,
ALFRED C. AURICH,
HAROLD I. JOHNSON,
Their Attorneys.

[Endorsed]: Filed Sept. 8, 1942. [206]

[Title of District Court and Cause.]

ORDER ENLARGING TIME

Good cause appearing therefor, it is hereby ordered that the time within which plaintiff-appellant may docket this cause and file the record thereof with the Clerk of the United States Circuit Court of Appeals of the Ninth Circuit be and is hereby enlarged to and including the 19th day of August, 1942.

MICHAEL J. ROCHE,
United States District Judge.

Dated: July 20, 1942.

[Endorsed]: Filed Jul. 21, 1942. [207]

[Title of District Court and Cause.]

ORDER ENLARGING TIME

Good cause appearing therefor, It Is Hereby Ordered that the time within which plaintiffs-appellants may docket this cause and file the record thereof with the Clerk of the United States Circuit Court of Appeals of the Ninth Circuit be and is hereby enlarged to and including September 9, 1942.

MICHAEL J. ROCHE,

United States District Judge.

Dated: August 17, 1942.

[Endorsed]: Filed Aug. 17, 1942. [208]

[Title of District Court and Cause.]

ORDER ENLARGING TIME

Good cause appearing therefor, It Is Hereby Ordered that the time within which plaintiffs-appellants may docket this cause and file the record thereof with the Clerk of the United States Circuit Court of Appeals of the Ninth Circuit be and is hereby enlarged to and including October 9, 1942.

(S) CURTIS D. WILBUR,

Circuit Judge.

Dated: September 8, 1942.

[Endorsed]: Filed Sept. 8, 1942. [209]

[Title of District Court and Cause.]

ORDER

Good cause appearing therefor, It Is Hereby Ordered that all original depositions taken in these proceedings be transmitted to the Clerk of the Circuit Court of Appeals for the Ninth Circuit.

MICHAEL J. ROCHE

United States District Judge

Dated: October 9, 1942.

[Endorsed]: Filed Oct. 9, 1942. [209-A]

[Title of District Court and Cause.]

APPELLANTS' DESIGNATION OF
CONTENTS OF RECORD ON APPEAL

Come now appellants-plaintiffs here, and designate the portions of the record, proceedings, and evidence to be contained and set forth in the record on appeal as follows:

1. Complaint.
2. Answer to Complaint.
3. Substitution of attorneys for plaintiffs.
4. Memorandum Decision and Minute Order of the Trial Court.
5. Findings of Fact and Conclusions of Law.
6. Judgment.
7. Notice of Appeal to the Ninth Circuit Court of Appeals. [210]

8. Costs Bill as taxed of defendants.
9. Satisfaction of Costs.
10. Costs Bond on Appeal.
11. Orders of enlargement of time to docket cause in the Circuit Court of Appeals.
12. Reporter's transcript of testimony and proceedings and trial of the cause, volumes 1 to 6 inclusive.
13. All original exhibits admitted in evidence during the trial of this cause.
14. All original exhibits offered in evidence and marked for identification of this cause.
15. All original depositions adduced in and on file in the records of this cause.
16. Stipulation and Order re transmission of exhibits and record to Circuit Court of Appeals.
17. Appellants' designation of contents of record on appeal.

Dated at San Francisco, California, this 30 day of September, 1942.

HACKLEY & HURSH
ROY C. HACKLEY, JR.
JACK E. HURSH

Attorneys for Appellants.

(Receipt of Service.)

[Endorsed]: Filed Sept. 30, 1942. [211]

[Title of District Court and Cause.]

APPELLEES' DESIGNATION OF CONTENTS
OF RECORD ON APPEAL

Now come appellees-defendants herein, and designate the following portions of the record, proceedings, and evidence to be contained and set forth in the record on appeal herein, in addition to those portions of the record, proceedings, and evidence set forth in appellants' designation of contents of record on appeal as follows:

1. Request for Admissions Under Rule 36, filed [212] November 21, 1941.
2. Certificate Under 28 U.S.C., Section 600-C, filed April 14, 1942.
3. Docket entries herein.
4. Appellees' Designation of Contents of Record on Appeal.

(S) CHAS. M. FRYER

(S) ALFRED C. AURICH

(S) HAROLD I. JOHNSON

Attorneys for Appellees-
Defendants

Receipt of a copy of the foregoing designation is acknowledged this 2 day of October, 1942.

(S) HACKLEY & HURSH

(S) ROY C. HACKLEY, JR.

(S) JACK E. HURSH

Attorneys for Appellants

[Endorsed]: Filed Oct. 2, 1942. [213]

[Title of District Court and Cause.]

STIPULATION AND ORDER RE TRANSMIS-
SION OF EXHIBITS AND RECORD TO
APPELLANT COURT

Parties agreeing that good cause appearing there-
for, subject to the approval of this Honorable
Court, It Is Hereby Stipulated that all original
exhibits admitted and offered in evidence during
the trial of this cause, and the original transcript
of record in this cause be transmitted to the Clerk
of the Circuit Court of Appeals for the Ninth
Circuit.

Dated: September 29, 1942.

HACKLEY & HURSH
ROY C. HACKLEY, JR.
JACK E. HURSH

Attorneys for Appellants
CHAS. M. FRYER
ALFRED C. AURICH

Attorneys for Appellees [214]

The foregoing stipulation is approved and It Is
Therefore Hereby Ordered that the Clerk of this
Court transmit all original exhibits admitted or
offered in evidence during the trial of this cause
and the original transcript of record in this cause
to the Clerk of the Circuit Court of Appeals of the
Ninth Circuit.

Dated: September 30th, 1942.

A. F. ST. SURE

United States District Judge.

Filed Sept. 30, 1942. [215]

[Title of District Court and Cause.]

DOCKET ENTRIES

Date	Filings—Proceedings	
1939		
Oct. 25	1.	Filed complaint, issued summons.
	31	2. Filed summons ex Oct 26.
Nov. 15	3.	Filed stip ex time-plead.
	4.	Filed stip ex time-plead.
Dec. 14	5.	Filed stip ex time-plead.
	29	6. Filed stip ex time-plead.
1940		
Jan. 15	7.	Filed motion for bill of particulars.
	8.	Filed notice of hearing deft's bill of particulars.
	9.	Filed order ex time to answer.
	29	Ord motions for bill of particulars denied, deft to have 20 days to answer.
Feb. 19	10.	Filed stip ex time-answer.
	21	11. Filed answer of defts.
Nov. 25		Ord case dropped from J. C. Calendar.
1941		
Apr. 16	12.	Filed substitution of attys.
	21	Ord dropped from Jud. Conf. Calendar.
Aug. 8	13.	Filed mo & no of mo to set.
	11	Ord set for trial Dec 2. Mailed notice.
Sept. 23	14.	Filed no of mo for con of trial.
Nov. 3		Ord deft's mo for continuance denied.
	17	Ord set for trial Dec 2.
	21	15. Filed defts request for admissions under Rule 36.

1941

- Nov. 28 Rec'd & filed deposition of Allan B. Ruddle.
 Rec'd & filed deposition of Lydell Peck.
- Dec. 1 Rec'd & filed deposition of Arthur C. Waller.
 Opened & refiled deposition of Allan B. Ruddle.
16. Filed notice of filing depositions.
- 2 Rec'd & filed deposition of J. F. McSwain.
 Rec'd & filed deposition of E. W. Zublin.
17. Exhibit No. 1 (McSwain).
 Rec'd & filed deposition of K. A. Wright.
18. Exhibits Nos 1 to 19 (Wright).
 Ord trial before the Court, mo of deft to dismiss as to Shell Development submitted [216]
- Dec. 2 Evid intro, con to Dec 3.
- 3 18. Filed pltff's exhibit 5.
 19. Filed pltff's exhibit 6.
 20. Filed pltff's exhibit 7.
 21. Filed notice of filing depositions.
 Ord trial resumed, evid intro, con to Dec 4.
- 4 Opened & filed deposition of Arthur C. Waller.
22. Filed praecipe, issued subpoena duces tecum.

Date

1941

Ord trial resumed, evid intro, deft's
mo to dismiss as to defts' & deft
Shell Development Co submitted,
con to Dec 5.

Dec. 5 Ord trial resumed, evid intro, mos'
of defts to dismiss denied, con to
Dec 9.

9 Ord trial resumed, evid intro, con to
Dec 10.

10 Ord trial resumed, evid intro, briefs
to be filed 20-10-5 days, con Jan
15, 1942, for further trial.

Opened & filed deposition of Lydell
Peck.

12 23. Filed stip withdrawing certain ex-
hibits.

24. Filed stip withdrawing certain ex-
hibits.

30 25. Filed pltff's opening brief.

1942

Jan. 9 26. Filed deft's brief.

15 27. Filed pltff's reply brief.

Ord case submitted, defts granted 5
days to file brief in reply to pltff's
reply brief.

Filed 6 Vols of Reporter's Tran-
script.

20 28. Filed deft's reply brief.

1942

- Feb. 27 Ord judgt entered in favor of
 defts with costs upon findgs to be
 filed. Mailed notice.
29. Filed order.
- Mar. 3 30. Filed stip ex time of defts to lodge
 findgs.
- 11 Lodged findgs.
- 13 31. Filed stip & ord ex pltff's time to
 object to deft's findgs.
- 20 32. Filed stip & ord ex pltff's time to
 objct to deft's findgs.
- 27 33. Filed pltff's objects & amndts to pro-
 posed findgs.
 Lodged pltff's findgs.
34. Filed order re objects & amndts to
 findgs.
- 28 35. Filed affidavit of service.
- 30 36. Filed deft's findgs.
37. Filed judgt in favor of deft with
 costs, Mailed notice.
- Apr. 1 38. Filed memo of costs & disburse-
 ments.
- 4 39. Filed pltff's mo to retax costs.
- 6 Ord further hrg re mo to retax costs
 con Apr 13.
- 9 40. Filed deft's memo in opposition to
 mo to retax cost bill.
- 13 Ord pltff's mo to retax costs denied.
- 14 41. Filed certificate under 28 U.S.C.,
 Section 600-C.

Date

1942

- June 12 42. Filed notice of appeal, Mailed notice.
43. Filed bond on appeal.
- July 21 44. Filed ord ex time to docket appeal.
- Aug. 17 45. Filed order enlarging time.
46. Filed stipulation ex time for appeal.
- Sept. 8 47. Filed satisfaction of judgt.
48. Filed stip from CCA ex time to docket appeal.
49. Filed ord CCA ex time to docket appeal.
- Sept. 30 50. Filed designation of record on appeal.
51. Filed stip & ord re transmittal exhibits etc.
- Oct. 2 52. Filed appellees' designation. [217]
-

District Court of the United States
Northern District of California

CERTIFICATE OF CLERK TO TRANSCRIPT
OF RECORD ON APPEAL

I, Walter B. Maling, Clerk of the District Court of the United States, for the Northern District of California, do hereby certify that the foregoing 217 pages, numbered from 1 to 217, inclusive, together with 6 Volumes of the Reporter's Transcript & 7 depositions, contain a full, true, and

correct transcript of the records and proceedings in the case of Lydell Peck et al, Plaintiffs, vs. Shell Oil Company, Inc. et al, Defendants, No. 21390-R, as the same now remain on file and of record in my office.

I further certify that the cost of preparing and certifying the foregoing transcript of record on appeal is the sum of Twenty-five dollars and forty cents (\$25.40) and that the said amount has been paid to me by the Attorney for the appellant herein.

In Witness Whereof, I have hereunto set my hand and affixed the seal of said District Court at San Francisco, California, this 9th day of October A. D. 1942.

[Seal]

WALTER B. MALING

Clerk

WM. J. CROSBY

Deputy Clerk [218]

In the Southern Division of the United States
District Court for the Northern District
of California.

No. 21390-R

LYDELL PECK and ALLAN B. RUDDLE,
Plaintiffs,

vs.

SHELL OIL COMPANY, INCORPORATED,
a corporation, and SHELL DEVELOPMENT
COMPANY, a corporation,
Defendants.

REPORTER'S TRANSCRIPT

Tuesday, December 2, 1941
10 A.M.

Counsel Appearing:

For the plaintiffs:

Messrs. Hackley & Hursh, by Roy C. Hack-
ley, Jr., Esq., and Jack E. Hursh, Esq.

For the defendants:

Alfred C. Aurich, Esq., and Harold I.
Johnson, Esq.

The Clerk: Peck v. Shell Oil Company.

OPENING STATEMENT ON BEHALF OF PLAINTIFFS

Mr. Hackley: In this case, if your Honor please,
I would like to give to your Honor a general de-

scription of the issues established by the pleadings before going into the proofs, with the thought that it may be helpful to the Court in following the general theory of the case.

Broadly, the proofs will be directed, on the part of the plaintiffs, to the proposition that some years ago one of the plaintiffs, Allan B. Ruddle, developed a core-binding product, a core oil, which eventually was given the name in the trade [1*] of Core-Min-Oil. The product will be referred to during the trial as Core-Min-Oil.

That product comprised primarily an asphalt or asphalt emulsion base, and other agents of the class of sodium silicate, aluminum silicate, and sodium fluo-silicate.

Mr. Ruddle worked for some considerable time, a matter of years, in the development of the product, and eventually believed he had reached the point, as our evidence will show he believed, where he felt he had a product which had commercial possibilities. He discussed the commercial possibilities with a number of leading manufacturers of asphalts and asphalt emulsions, on the theory that this opened a new market for asphalt. I believe it was his feeling from those with whom he discussed, as the evidence will show, that asphalt as a core oil was theretofore not commercially used. He went to a number of companies, interested them in it, discussions were under way, and one day, as the testimony will show, he ran into a friend of his,

*Page numbering appearing at top of page of original Reporter's Transcript.

who was the head of the asphalt division of the defendant Shell Oil Company, now Shell Oil Company, Incorporated; then I believe it was called the Shell Oil Company, a California corporation. It since has through merger, as the evidence will show, become the Shell Oil Company, Incorporated, which comprises a number of widely known, worldwide known, Shell Oil Companies.

Mr. Ruddle, talking with this gentleman, I believe informally on Market Street, the proof will show, told him he had something he thought might be of interest to Shell. His friend, Mr. J. F. McSwain of that company, the Shell Oil Company, and head of the asphalt department, invited Mr. Ruddle to go into it further with the company and investigate the product. [2]

In the course of this investigation, during the early months, as the proofs will show, the early months of 1938, January, February and perhaps March, the Shell Company was given samples of the product, made elaborate tests, both in the laboratory and in a commercial foundry in Oakland and one, I believe in Berkeley. And eventually they apparently reached the conclusion that the product was meritorious, because in the latter part of March 1938 Shell presented to Messrs. Peck and Ruddle, who were the proprietors of the product, a proposed contract, comprising an exclusive license agreement under the Ruddle developments, directed not only to the development itself, but also to certain applications for patent which were then pend-

ing on the product, and which, by the way, have since issued into United States letters patent.

The contract was reviewed, and on April 8, 1938 an agreement was entered into whereby Shell acquired the exclusive right to market, sell, develop and exploit, both through itself, its parent companies and its subsidiaries and affiliates, as the contract expressed it, the product of Mr. Ruddie, and any other products for foundry use which were developed along the same line or competitively therewith.

In that connection I would like to call attention to a clause of the contract, and it will become significant as this trial goes forward, relating to the question of royalty. The contract, your Honor, is annexed to the complaint as Exhibit B, and the text of the contract was admitted in the answer to be correct, and it was admitted that the contract was duly entered into by the parties. In that paragraph relating to royalty this general provision is set forth:

“Shell Oil agrees that it and its affiliates, subsidiaries, [3] and parent companies in the United States will pay as royalty to Peck and Ruddie of all their sales of Core-Min-Oil and other compositions for foundry use sold for use in the United States percentages of the selling prices to consumer f.o.b. manufacturing plant, excluding sales tax and containers, according to the following sliding scale.”

Your Honor will note there the provision was for sales in the United States. There are later provi-

sions as to foreign patent protection, foreign coverage of the developments and royalties in foreign countries under these circumstances: Shell being the one to name the countries in which it desired protection.

In addition to that, Shell went a step further in the contract. They not only agreed to pay a royalty, but they agreed to use the utmost diligence in attempting to market and in marketing to the fullest extent of their facilities the product Core-Min-Oil and other compositions for foundry use.

The Court: What are the other compositions for foundry use?

Mr. Hackley: At the time I believe there was a composition mentioned as a core wash, and I believe there was also contemplated, I believe the evidence will show, if we go into that point——

The Court: A wash for cores?

Mr. Hackley: Yes.

The Court: An oil?

Mr. Hackley: I believe not. I believe it is a carbon compound that is washed over the core to give it a smooth or firm surface.

The Court: I will say for the benefit of both sides that I started as a coremaker, and so I think probably that will be [4] a warning to both sides getting reckless. I know just exactly, in a measure, how cores are made and what oils were used even in my days many years ago. So proceed with that, gentlemen. I have the benefit of the experience.

Mr Hackley: This core wash and its constituents

will be brought into the record but will not be a major part of the issue before your Honor.

The Court: The core wash on its outer surface in my day—it might have changed since—was not an oil.

Mr. Hackley: It was not an oil?

The Court: No, it was not an oil.

Mr. Hackley: That is my understanding now, but I am frank to say I do not know.

The Court: I do not know what has developed since then. They have made such progress in chemistry since then I would not venture to say what they are doing now.

Mr. Hackley: The product we are primarily concerned with in this case is an oil for a binder for the core itself, in contrast with the wash, that I understand is put over the surface of the core. This is a binder which would be a substitute for linseed oil, Houghton Oil, Quandt Oil, and the various oils that are widely known in the market, and I assume, with your Honor's experience, known to your Honor.

(At the conclusion of plaintiff's opening statement the following occurred):

The Shell Oil Company agreed after this initial investigation as follows, and I read from the contract paragraph II on page 2:

“Shell Oil shall diligently attempt to sell Core-Min-Oil and other compositions for foundry use as covered by such patent applications or later patents; and further, Shell Oil shall diligently attempt

to interest its affiliated, subsidiary [5] and parent companies in the United States to sell Core-Min-Oil and other compositions for foundry use as covered by such patent applications or later patents."

And I might say in that connection, our evidence will show, if it becomes important, that the words "other compositions for foundry use" are necessarily directed to substitutes for the precise formula which Peck and Ruddle developed and presented to the Shell Oil Company, that is, core oils in contrast with core washes, although the phrase is definitely and designedly broad enough to cover whatever Shell might make and sell for that purpose, that is, for foundry use.

The contract was entered into but did not become a formal or binding agreement as such under its terms until an option period of six months had first elapsed, and then would become a binding agreement, as I recall the terms of the instrument, only upon notice from Shell of its intention to elect to proceed under the contract. We would have to turn to the instrument for that, but the contract provided for its automatic continuance unless Shell asked for its discontinuance. In any event, after this six months option period and three ten-day extensions of the option period granted at the request of Shell by the plaintiffs, the contract was exercised by the Shell Oil Company and became a firm, formal binding agreement, and upon its terms had an initial five-year terms, which simply meant that Shell had bound itself unequivocally for five years to perform the terms of the contract.

The Court: What is the date of the contract?

Mr. Hackley: April 8, 1938. The date of the option, your Honor, was November 2, 1938. The date of the exercise of the option and the initial term under the contract was five [6] years. I will read the term of the contract, sections 14 and 15 of the contract. I will first read section 14:

“The term of this agreement shall extend until the expiration date of the last issued patent owned or controlled by Peck or Ruddle covering Core-Min-Oil.”

Section 15: “Shell Oil may terminate this license agreement in the United States at any time after five years from the date hereof by giving thirty days’ notice in writing to Peck and Ruddle.”

That meant that the contract had an initial term to and including at least April 8, 1943, or some two and a half years beyond the present date, and some three and a half years beyond the date, or four and a half years, I believe, beyond the date of filing this action. In any case, Shell, it will be noted, and as the proofs will show, had a period of seven months from April 8, 1938 to November 2, 1938 within which further to investigate the patent situation, as the contract expresses it, relating to Core-Min-Oil, the commercial possibilities of the sale of the product, the laboratory problems in connection with it, and particularly the foundry problems in connection with the use of the product. That meant, as the proofs will show, that Shell had an aggregate of ten months before this agreement be-

came binding within which they could at any time, without any penalty to themselves, remove themselves from the agreement by canceling it as a matter of right. After that term had expired and the contract had been exercised, as Shell did it, as the proofs will show, on November 2, 1938 the contract went into force four or five years, and Shell could not cancel that contract until the end of five years, and then only by giving thirty days' notice of its intention to cancel in advance of [7] that date.

I emphasize that, because I want your Honor to see even at this early stage that Shell had ten months, with their gigantic laboratory facilities, high-paid technicians, access to commercial foundries, all of which were utilized during that option and prior period for the investigation of the product, to determine whether or not they wanted to undertake the obligations which they have here of their own free will undertaken.

During all this period, as the reports will show, as the evidence will show, Shell had been investigating in the laboratory and in the foundry this product. The laboratory at Martinez, the laboratory at Emeryville, the Vulcan Foundry in Oakland, Macauley Foundry in Berkeley, were all utilized for this purpose. The contract was exercised, and apparently Shell entered into it and continued along the line in apparent good faith for a period of several months.

One day, as the evidence will show, in the middle of 1939, sometime either late in June or early in

July, the same man that Mr. Ruddle talked to in the first instance, Mr. McSwain, head of the asphalt division of the Shell Oil Company, met Mr. Ruddle at Mr. McSwain's office, and he told Mr. Ruddle that things did not look so good for Core-Min-Oil at that time. This was the first indication, as the evidence will show, that Shell had any thought that this product was anything but perfectly satisfactory for all purposes. As a matter of fact, their reports, copies of which will be offered to your Honor, their laboratory notes, all showed the product to be entirely adequate for every purpose for which it was designed and to be superior in major respects to competitive products on the market. Such things as drying time of the cores, an important factor, cost [8] of materials, easy making of the core—things of that sort were all in favor of Core-Min-Oil.

I believe that the evidence will show, as a matter of fact, that Core-Min-Oil was in a position to be marketed at half the price of the next lowest competitive product in price on the market, and about a third or a quarter of the price of linseed oil, and marketed at a tremendous profit to the Shell Oil Company had they elected to perform this agreement.

In any event, Mr. McSwain told Mr. Ruddle, as the evidence will show, that Shell was thinking of giving up the contract. Mr. Ruddle protested. First of all, there was no power in the Shell Oil Company to surrender the contract. They had

entered into it and were bound to carry out its obligations. Second, that he, Mr. Ruddle, and his associate, Mr. Peck intended to hold Shell to the terms of the contract.

Mr. McSwain explained the matter, as the evidence will show, by saying that the Shell Oil Company in its investigations had discovered another core oil utilizing asphalt but not utilizing the balance of the formula which Mr. Ruddle had brought to the Shell Oil Company, which was equal to all of the good properties of Core-Min-Oil and superior to Core-Min-Oil in some respects, and that as far as the Shell Oil Company was concerned, it considered that product to be its own property, and it intended to exploit and market it independently of the contract; that they were willing to return to Peck and Ruddle the product that Peck and Ruddle had brought to them and go on with the product of their experiments and tests of the Ruddle product, and market the product of that experimentation. Now, the evidence will develop that fact.

Shortly after that, Mr. Peck and Mr. Ruddle received from [9] the Shell Oil Company what purported to be a notice of cancellation dated July 26, 1938, saying in so many words that it was the intention of the Shell Oil Company to cancel the contract, and I believe the notice said "For failure of consideration," and went on with certain allegations of fact of a nature which it will be up to the defendant to prove, if it be relevant to this issue, and Shell stated that they were no longer going to continue under this agreement.

Peck and Ruddell replied by pointing out that they considered Shell bound by the agreement, intended to stand on it themselves, and intended that Shell should carry out its obligation diligently to market Core-Min-Oil and other products for foundry use.

Now, it is at that point that I call your Honor's attention in this preliminary phase to the words "other products for foundry use." Obviously, that includes any developments which Shell may make of the same type. Obviously, when Shell developed this other core oil during the course of its study of the Ruddell product, they looked back at the contract and found that here, under this contract which they had signed with Messrs. Peck and Ruddell, they would have to pay to Peck and Ruddell a royalty on what they themselves had developed by the terms of that contract. Apparently they did not intend to do that. Apparently their attorneys advised them not only would they have to pay a royalty under it, but when they terminated the contract, they would have to surrender back to Peck and Ruddell the development that was so made, because in a reply to Shell, Peck and Ruddell stated that they were standing on the contract, and they understood that this cancellation was caused not by any failure of consideration, which would seem to be preposterous in the light of the ten months of investigation which Shell had had, and [10] the almost two years that Shell had the product exclusively at the time of the notice of cancellation.

but also because of the fact that they, Peck and Ruddle, understood that Shell had developed a new and what they considered to be a superior product, which they were attempting to avoid, and including under the terms of the contract in the manner the contract provided.

Shell promptly replied to that letter and said they were motivated in canceling the contract by the fact that the Peck and Ruddle product was of no value, commercially or otherwise, not by the fact that they had admittedly developed a different and another product. I think they said they developed it quite apart from their study of the Peck and Ruddle product. But as the evidence will show here, the same members of the Shell organization that were studying the Peck and Ruddle product were the ones who developed this so-called new or different Shell product.

Nevertheless, Peck and Ruddle again responded and said that they had entered into the contract in good faith, and insisted that Shell perform. They pointed out that Shell had never made any effort whatsoever to market any product under the agreement; that, and as the evidence will show, Shell admits that they never made any effort to sell so much as a single gallon of this product. Yet here is the contract in which they agreed to do just exactly that, and to do it for at least five years, and do it diligently.

Getting no satisfaction in attempts to dispose of the matter amicably, this action was filed, and the

burden of this action is that your Honor order the Shell Oil Company specifically to perform its contract, and that you award to the plaintiffs damages for defendants' failure, neglect and refusal to [11] perform the contract prior to the date of your Honor's order. It would appear that if Shell continues after your Honor makes the order that we are seeking here, continues to refuse to perform the contract, we will then be in a position to move for supplemental relief in equity. That, of course, will be something to be faced at a later date and only if Shell continues to flaunt the obligations of this contract.

The Shell Oil Company, as your Honor sees from the statement which we have given, and assuming we can support these statements with proof, is a gigantic organization with tremendous resources, with one of the finest, if not the finest, technical laboratories in the world over here in Emeryville, California, with fine technical laboratories at Martinez, with resources unlimited so far as direct field tests are concerned. The picture that we intend to show to your Honor in this case is simply that of two men, Mr. Peck and Mr. Ruddle, neither with any necessary experience in the making of cores, core oil, foundry work, particularly no experience in merchandising those products, putting their trust in that company, in good faith, the company sewing them up lock, stock and barrel so they couldn't have sold, and the contract *expressly* them from doing it during the period of the con-

tract, and after Shell has kept them off the market during that period, while Shell finds another way to accomplish the same result in the same or a better way, as Shell contends, then Shell said, "Here, you men can have back that which you have given us. We have kept you beautifully tied up during the period we got our product on the market. Now you are free to go ahead, and you can suffer the consequences. If you can sell your product in the face of our competition, that is fine, but you are not going to have the help of this [12] organization in spite of our contractual obligations."

That, your Honor, is the broad outline of the case. Before closing this brief opening statement, I would like to add one or two things as to the analysis of the pleadings so we can determine what issues we must prove and what issues remain admitted in the pleadings.

Taking the complaint, the jurisdiction of the plaintiff is denied. That will have to be proved. Shell, however, admits its own existence, admits its jurisdiction—and when I use the words here "Shell Oil Company," I am referring to the two defendants, one of them called the Shell Oil Company, Incorporated, I believe a Virginia corporation, and the other Shell Development Company, a corporation of some other State, I think it is Delaware, if I remember the pleadings. It is irrelevant, or it is immaterial, at least, because the facts stand admitted. And I refer to the two companies, the two defendants, who are so closely intermingled

as to be inseparable, as the "Shell" or the "Shell Oil Company" through this proceeding, unless it is deemed inadvisable by your Honor or otherwise during the course of the trial.

As far as the jurisdiction of the case is concerned, diversity of citizenship is admitted, jurisdiction is denied by the defendant, because they say the value to the plaintiffs of the issue of this case, exclusive of interest and costs, is not more than \$3,000. As a matter of fact, our prayer is for an accounting in the sum of more than \$100,000.

The legal status of the defendant corporations is admitted. There is an exhibit annexed to the complaint, which will be offered in evidence, which is likewise admitted as establishing or defining that status. [13]

Then the defendant proceeds to deny substantially all of the balance of the pleading, except admitting the execution of the agreement, Exhibit B; the exercise of the option, Exhibit C; the cancellation notice, or alleged notice of cancellation, whatever they choose to term it, Exhibit D—these exhibit numbers are to the complaint, your Honor—; the refusal of the plaintiffs to accede to the cancellation, Exhibit E; the reports furnished by the defendants, Exhibits F-1 to -13; the demand for performance; the further refusals, Exhibits G, H and I—excepting for that, the Shell Oil Company denies everything. They deny that Core-Min-Oil was developed; they deny that it ever existed; they deny that it was ever shown to them by the plaintiffs; they deny that they ever received a disclosure of it

from the plaintiffs; they deny that they ever worked with it; they deny the disclosure was in confidence, to be marketed only by the license and consent of the plaintiffs; they deny that they studied the product before making the contract. They admitted that they worked with it afterwards. They deny everything which the contract calls on them to do and which their reports will show was done.

The issue, therefore, is established on the denials as I have indicated in this presentation. The specific prayer is for relief for non-performance of the contract, and an order for specific performance of the contract henceforth.

Mr. Aurich: With the Court's permission, the defendants will reserve their opening statement until the commencement of their case, at which time I trust it will be of more assistance to the Court than if given now.

The Court: Very well.

Mr. Aurich: However, your Honor, I would like to make a [14] motion to dismiss on behalf of the defendant Shell Development Company. The contract is attached to the bill of complaint. It is a contract between the plaintiffs Peck and Ruddie on the one hand, and one of the defendants on the other, namely, the Shell Oil Company. The Shell Development Company is not a party to that contract. The prayer for relief that the plaintiffs are seeking is twofold: They seek specific performance of the contract and they seek damages for its alleged breach.

Now, it is rather fundamental that you cannot decree specific performance of a contract against a party who is not a party to the contract, nor can you recover damages for any alleged breach of contract by a party not named in the contract, and on those grounds we move that the complaint be dismissed as to the defendant Shell Development Company.

Mr. Hackley: In answer to that, your Honor, it is true that the Shell Development Company is not a party to the contract as such. But the proofs will show the Shell Development Company is merely an alter ego of the Shell Oil Company, Incorporated, which is a wholly-owned subsidiary and affiliate. It performed a large proportion, if not all, of the laboratory and experimental work relating to this contract. Its own attorney, as a matter of fact, was the draftsman of the agreement itself and is a witness to the agreement, as to the signatures of some of the Shell Oil Company executives.

As far as relief against the Shell Development Company is concerned, it is directed to the question of restricting the disclosure to others of the confidences which may have been made to it by the plaintiffs, and for such other and further equitable relief particularly growing out of the subject of developments of this additional product, this substitute product, about [15] which the proofs will show it was developed in the laboratories of the Shell Development Company. I believe, if your

Honor please, we can support the position of the Shell Development Company very adequately in the evidence.

The Court: Assuming that you can, how could a judgment run against the Shell Development Company?

Mr. Hackley: Not as to damages——

The Court: The motion to dismiss does not preclude you from presenting any proof that you may have?

Mr. Hackley: It would preclude us from relief against the Shell Development Company as to the development of a product, your Honor, and as to the disclosure of confidences which my clients made to them.

The Court: How can you render a judgment, on your own statement, against the Shell Development Company when they are not a party to this contract?

Mr. Hackley: The judgment I am asking is an equitable judgment, your Honor, not arising under the contract, but arising under the principles of equity.

The Court: The motion stands submitted, and I will reserve a ruling on it. Proceed.

ALLAN B. RUDDLE,

Called on his own behalf; Sworn.

Direct Examination

Mr. Hackley: Q. State your full name, age and residence address, please.

A. Allan B. Ruddle, 601 O'Farrell Street, San Francisco, and I am fifty-three years old.

Q. Are you the Allan B. Ruddle, one of the plaintiffs in this action? A. I am. [16]

Q. Are you acquainted with Lydell Peck, your co-plaintiff in this action? A. Yes, I am.

Q. Do you know his residence address?

A. Yes; it is 652 Spruce Street in Oakland.

Q. Was Mr. Peck residing, to your knowledge, at that address at the time of the filing of the action here?

A. Yes, and for a long time prior to that.

Q. And for a long time prior to that?

A. Yes, that is right.

Q. How long have you been residing in the City and County of San Francisco, Mr. Ruddle?

A. Since 1936. I lived in Oakland for about ten years prior to that.

Q. Since 1936 you have been continuously a resident of San Francisco County?

A. That is right.

Q. What is your occupation, please?

A. Well, I now work for the Internal Revenue of the United States Treasury Department.

Q. In what capacity?

(Testimony of Allan B. Ruddle.)

A. In the field division.

Q. How long have you been so occupied?

A. For about a year and a half.

Q. Prior to your work with the Internal Revenue Bureau with whom were you associated?

A. James F. Peck. I was in his office for some twelve years, I think, or thirteen, something like that.

Q. Who was Mr. Peck? What was his occupation?

A. James F. Peck was an attorney in San Francisco. He was the father of Lydell Peck.

Q. One of the plaintiffs in this action?

A. That is right.

Q. What type of work did you do when you were [17] employed by Mr. Peck?

A. Well, I did some work in his office, did legal work, that is, did research work for him, helped him in many of his cases that he had.

Q. How long were you associated with Mr. Peck in that way?

A. I think about twelve or thirteen years that I was in his office.

Q. Prior to that what was your occupation?

A. Well, I lived at Merced, and we had a farm, that is, my father, my brother and myself had a farm in Merced. I was born in Merced and practically raised on the ranch.

Q. Are you the Allan B. Ruddle alleged in the complaint of this action to have developed a product known as a core oil for foundry use?

(Testimony of Allan B. Ruddle.)

A. Yes, that is right.

Q. And known under the name of Core-Min-Oil?

A. Yes, I am.

Q. When did you initiate your work with reference to the development of core oils with particular reference now to Core-Min-Oil but leading up to that stage?

A. I had done some work on fireproofing of some lumber with a solution that we were interested in, and I can't recall just who it was, but somebody talked to me about some core oil that they were trying to do, and that gave me an idea that I could make a core oil for foundries out of this solution.

Q. When did this work start, Mr. Ruddle?

A. About the beginning of 1937, I would think. That is a guess on my part, because I haven't any method of arriving at the exact date.

Q. Continue now and describe your work leading up to the development of the product which we are interested in.

A. Well, the first thing I tried to do was incorporate a red oil and a pale oil that the Standard Oil had given me with this solution. I couldn't emulsify, I couldn't get it into one [18] package.

Q. What was the solution that you refer to? Do you remember its composition?

A. Made up of sodium silicate, sodium fluo-silicate, and aluminum sulphate. At first I made up many samples and dried—I dried them first in the sun. I didn't have an oven to cook them in, so I

(Testimony of Allan B. Ruddie.)

just went to the Santa Fe Foundry out in Richmond. That was the first time I had ever been in a foundry. And I went through that foundry and they had an oven there that I put—made a mixture of sand with the solution that I just described, and then in it I had some asphalt that I had melted and put in it, and also some red oil and some pale oil.

The Court: Q. What do you mean by red oil and pale oil?

A. Red oil and pale oil is a mineral oil that the Standard Oil gave me. They said it was a cheap oil that they had very little market for. That is after lubricating oils had been taken from it, I believe they told me. I tried these out at the Santa Fe Foundry and the results were—as a matter of fact, I didn't get any encouragement at all at first, but I kept working with it, and I took the materials to my apartment here in San Francisco, at 715 Leavenworth Street, and there I worked on it for months. Then I took it to the Kingwell Foundry, was the next foundry I went to.

Mr. Hackley: Q. Where is that located?

A. That is located here in San Francisco, on Natoma Street. Frank McDonnell was a man that either had an interest in the Kingwell Foundry—I talked to him about this, and he made the arrangement for me to go down to the Kingwell Foundry, and there we started making the cores out of a red oil that I used then. That is a brass foundry, and

(Testimony of Allan B. Ruddle.)

I remember that they made a number, [19] quite a number, of cores. I was there for two or three months off and on, several times a week. They poured some brass castings there.

Mr. Hackley: Q. Continue, Mr. Ruddle, without quoting what others said to you; just your own experiences and observations.

A. Well, I watched them take the castings to the lathe, and in the lathe, why, there were no bubbles under the surface of the castings, and I understand that is one of the objections in a brass foundry.

Q. Confine yourself to your own observations and experiences, please, Mr. Ruddle.

A. Well, I took the—I think it was Mr. Woodin of the Standard Oil Company took me over to the Macauley Foundry.

Q. Where is that located?

A. That is located in Berkeley.

Q. Do you know the address?

A. It is on Carlton Street, but I don't know the address. It is in West Berkeley, down near the water. And there I started in and worked many months with the—the difficulty that I had at the Macauley Foundry, it made perfect castings, but I couldn't get the proper friability, and also some of the time I never—at that time I couldn't [20] understand why, when I put the cores in the oven, that some would be good and others would not. It seemed they were baked under the same circumstances.

(Testimony of Allan B. Ruddie.)

Q. What formula were you using for your core oil at this time?

A. At the beginning I was using red oil.

Q. That is a petroleum?

A. Together with this formula.

Q. That is a petroleum product, is it?

A. That is a pretroleum product, yes, the distilled product that I got from the Standard Oil Company. And I think I used a little red oil that I got from the Shell Oil Company. I think that Jack Montgomery, who had charge of sales or something, part of the Shell Oil Company, gave me a sample of red oil of theirs and I tried it. But, as I say, I had trouble with the friability.

Q. Would you define what you mean by "friability," please.

A. Well, when we would bake castings—I mean, bake the cores and castings were poured, then you couldn't get the core out of the inside of the casting, that is, without a great deal of difficulty. And one day I was down at the Philadelphia Cores talking to my friend Dr. Cleveland down there, and I was asking about the softening of the cores, and also I told him the cores were too good, I couldn't get them to pour out the castings. He said, "Well, the Shell Oil Company—I mean the Union Oil Company had left a gallon of some asphalt emulsion here for me. If you want to take that and try it, you are perfectly welcome to it. I got it—they gave me it to waterproof some corrugated paper boxes."

(Testimony of Allan B. Ruddle.)

And so I said, "Well, yes, I will be very glad to have it and try it."

After taking it and running many tests with it, because I could determine the right amount, why, I developed what I thought [21] at the time was an outstanding core oil, that is, it had a baking time that saved about two-thirds of the drying time in an oven.

Q. Against what type of core oil?

A. Against linseed oil or Houghton Oil. Houghton Oil was used then in the Macauley Foundry.

Q. Did you make comparative tests yourself of baking time of cores made with your core oil and cores made with Houghton Oil and linseed oil?

A. Yes, many of them, hundreds of them.

Q. And you reached the conclusion that your cores would bake in approximately one-third of the time of the others?

A. Yes, and even less. Smaller cores were a great deal of time less than that.

Q. The difference was progressively greater as the cores became smaller?

A. As the cores were larger, the baking time was nearer alike.

Q. That is, there was a less difference between them, do I understand? A. Yes, there was.

Q. Just what formula were you using for your core oil at the time you were making these last cores you were referring to?

A. Well, I used—do you want a description of the solution?

(Testimony of Allan B. Ruddie.)

Q. I would like to have a description of the formula of the exact product that you found most superior.

A. The solution was made by using a gallon of water, an ounce of aluminum sulphate, and one ounce of sodium fluo-silicate, and two gallons of sodium silicate. Now, I mixed the sand by using 1750 cc's of sand, dry sand, and I mixed 80 cc's of solution, which was 32 Baume, and 50 cc's of asphalt emulsion. That seemed to be about the right consistency for moisture. [22]

Mr. Hackley: Q. You say you used 80 cc's of solution. What do you refer to as solution?

A. That is the solution that I described there. Is that what you mean?

Q. The sodium silicate, water, aluminum sulphate and sodium fluo-silicate?

A. That is right.

Q. In the proportion that you mentioned?

A. Yes.

Q. Then you took 80 cc's of that product?

A. Yes, that is right. The reason I put them in two packages was I was unable to put them in one package. They would settle out.

Q. Just what do you mean by that? Put what inside two packages?

A. I could keep the sodium silicate solution and the asphalt emulsion in the same package without agitating it and stirring it up. They would separate if let stand.

(Testimony of Allan B. Ruddle.)

Q. So you stirred them in two separate units?

A. Yes, and I used them that way for that purpose. [23]

Q. Draw off one and draw off the other one?

A. Yes, though you could put them together, and you agitate them in as you put them in. They work the same.

Q. As long as they were agitated and thoroughly mixed, they could be used as a single product?

A. Yes, I made them separately because I wanted to be sure I had the right proportions of each one.

Q. Will you describe exactly what your procedure was.

A. We mixed out the 1,750 cc's of sand and in it we made a little hole in the center of it, a puddle to put in the solution, 80 cc's of solution, and then mixed that into the sand, and then put the asphalt emulsion in, and then mixed it.

Q. You have used the word "we" there. Whom do you include in the "we"?

A. I was thinking of the coremakers in the foundries who worked with me on it.

Q. Did you do all these things yourself as well as do them with others?

A. I did some myself, and then I would turn them over to the coremakers and tell them how to do it at the Macauley Foundry. A number of the coremakers there would try it for me.

Q. This is all at the Macauley Foundry?

(Testimony of Allan B. Ruddle.)

A. Yes. All this I am describing is at the Macauley Foundry.

Q. This all occurred approximately when, that is, this last formula that was finally developed and used?

A. Well, it was probably the fall of 1937, I would guess, and in the first part maybe of 1938.

Q. Do you remember the names of any of the coremakers who worked with you at Macauley's in these later months?

A. Yes. The one that Mr. Olson, who was manager then of the Macauley Foundry, assigned to it was Mr. Otto Gosh, who was a coremaker on engines. He made the engine heads, and he thought he would— [24] told him that when he had a little extra time, if he would work with this and teach me something about the core business. And he worked with it for months with me. I tried to interfere with them as little as possible. I baked my cores generally at the noon hour, when they would turn the ovens off and go to lunch. They would be gone about three-quarters of an hour. I would make the cores up, or they would make them up, and I would bake them during that time.

Q. Did you pour any castings or have any castings made with these cores that you have described?

A. Yes, they poured one or two generally. I don't know whether they did every day or not they were there working. They didn't work, I think, but five days a week at that time, and they poured

(Testimony of Allan B. Ruddle.)

sometimes twice a week. But when they did, they nearly always for a period of several months poured one or two castings for me.

Q. Using your cores?

A. Yes, that is right.

Q. What were the castings like? Can you describe them with reference to their characteristics?

A. Well, I am not a foundry man, but I took it to the foundry people,

Mr. Hackley: Q. I would like you to describe the casting, not what somebody else said about it, Mr. Ruddle. If the type of casting that resulted has a foundry name, you can, of course, use that name.

A. Well, they were perfect castings in every instance. We never had—I never had a failure in any casting that was poured all the time I worked with this, and if you go through the Macauley Foundry or the Vulcan Foundry or any foundry you will see a great loss in castings.

Q. You know of no single casting lost when poured with one of [25] your castings?

A. Never had one lost that I poured.

Q. How is the surface of the casting which was adjacent to the core? Was it smooth, rough or what?

A. Very smooth, yes, it is. It makes a very smooth core, and, therefore, the casting is very smooth.

Q. Did the cores appear to you to act satisfactorily from the standpoint of making castings?

(Testimony of Allan B. Ruddie.)

A. Yes, the cores were excellent. The necessary part of that was in the pouring of the casting.

Q. Were the castings satisfactory that were made with those cores, so far as you know?

A. Yes, they were, so far as I know.

Q. When did you finally reach the conclusion that you had hit upon a satisfactory formula, that is, the formula which you have just described—approximately the date?

A. After we had determined the right proportion, as near as we could, of the amount of asphalt emulsion and put in the solution, we then felt that we had the product ready for somebody to market. While we knew that we were having trouble with the softening of the cores, which was later found out to be the gas from the fires, why, we thought then that we were ready for somebody to take it and market it.

Q. You have described this question, this problem of softening of the cores. Will you describe that a little more? What did you determine in that connection?

A. Well, we did not determine at that time——

Q. I mean with reference to the condition; what do you mean by softening of the cores? Will you describe that?

A. Well, it was a peculiar thing, that we would put the cores, several of them, in the oven and for some reason some would have a soft surface, powder, and just go to pieces like it had [26] nothing

(Testimony of Allan B. Ruddle.)

in it, like pure sand, and others would come out and be perfect.

Q. Under apparently equal conditions you had inconsistent results, is that right?

A. Yes, some days we would bake those cores all day long and we wouldn't lose a core, and other times, why, we would lose them. I would even make a new solution, thinking maybe that was the reason for it.

Q. This was all in the latter part of 1937, as I understand you?

A. Yes, that was in the latter part of 1937.

Q. Now, at this point did you do anything with reference to possible commercialization of your product?

A. Yes, we took the product—I talked to Mr. Peck, Mr. James F. Peck and Lydell Peck about it, and we determined that it was ready now for some company to take hold of it, that would find this little trouble that we had on the softening of the cores.

Q. That is, softening of some of the cores?

A. Yes. We thought it was something that could be determined very easily chemically, so we took it to the Standard Oil Company, I believe Mr. Harry Collier of the Standard Oil Company—

Q. You mean Harry Collier, now president of the Standard Oil Company?

A. Yes, he is president of the Standard Oil Company, and he got us in touch with the American

(Testimony of Allan B. Ruddle.)

Bitumuls Company, that is, the asphalt department of the Standard Oil Company, and the American Bimutuls Company sent their chemists from their American Bitumuls laboratory over to Macauley Foundry, and they became very much interested—in fact, they submitted a contract to us. We didn't like the terms of the contract, so we didn't go into the contract with them.

Q. Did you discuss the product commercially with any other companies?

A. Yes, we talked to the General Petroleum Company [27] and Union Oil Company, and also the American Brake Shoe Company. The American Brake Shoe Company were interested in it, and, in fact, since Shell Oil Company has had it, the American Brake Shoe Company have wanted the product. I so related that to the Shell Oil Company.

That is, they wanted to use the product at some of their foundries.

Mr. Hackley: Q. Did you take the product during this period to the Shell Oil Company, the defendant in this action?

A. Yes, we did—I did.

Q. Now, describe precisely what you did in that connection? A. Well—

Q. Particularly starting now with the very inception of your first contract with the Shell or any representative of the Shell Company.

A. My best memory of how I first contacted the Shell Oil Company was I was walking up Market

(Testimony of Allan B. Ruddle.)

Street from the Ferry Building and I overtook Floyd McSwain, who was then manager of the Shell Oil Company, the asphalt department of the Shell Oil Company, and I told him about this product, told him I thought it would probably be a new outlet for asphalt emulsion, and described it to him as best I could.

Q. What do you mean by "new outlet for asphalt emulsion"?

A. Well, there was a new market for it, and he said the Shell Oil Company was interested in finding a market for any of their products. I told him that we had been dealing with the American Bitumuls Company. He asked who in the American Bitumuls Company, and I told him—I don't recall the name—it was Mac somebody, and he said he had worked for this particular man, and he said [28] he wasn't surprised that they would not give us a good contract knowing this man as he knew him. And he said the Shell Oil Company are the people to deal with; they have greater facilities, more salesmen; they can sell anything that they get hold of; anything that they want to sell, they can sell it. In fact, he said, "We have five thousand salesmen," and he said, "If they really take this, they would really sell it."

Q. This is Mr. McSwain?

A. Yes, sir, Mr. McSwain told me that when I first met him.

Q. When and where was this first meeting with Mr. McSwain with reference to date and place?

(Testimony of Allan B. Ruddle.)

A. As I recall, it was either the end of 1937 or the first part of 1938. I can't recall just the exact date, but it was on Market Street, as I recall.

Q. In San Francisco?

A. Yes. I have known Mr. McSwain for many years. I went to school with him. We were always friendly. [29]

Q. Was anybody else present at or a party to this discussion between yourself and Mr. McSwain?

A. No, not at that time.

Q. And you said that took place the first part of 1938. What do you mean by that, the first month, or the first day?

A. It might have been January; it might have even been February, 1938. As I recall it was—it might even have been in the latter part of 1937; I won't attempt to fix the date.

Q. Right in that period, however?

A. It was in that period; it was just prior to all of the negotiations.

Q. By the way, before you met Mr. McSwain had you attempted in any way to secure patent protection on your developments?

A. Yes, we made application, I think, for two or three patents. The applications were in. I think there were three of them.

Q. Do you recall the numbers of any patents that were issued on those applications, assuming they did issue?

A. No, I wouldn't recall the numbers. I know that two of them have since issued the patent.

(Testimony of Allan B. Ruddle.)

Q. I show you Patent No. 2,193,346, issued March 12, 1940, to Allan B. Ruddle, and ask if that is one of the patents which you refer to?

A. Yes, that is one of the patents.

Q. The application for that patent, if I understood you, was filed prior to the time you met Mr. McSwain?

A. Yes, this application is dated December 10, 1937.

Q. And if I understood you, it was shortly after the application for the patent——

A. Yes, it was after this, I remember that, because I told him at that time that we had made application for patent.

Mr. Hackley: Let's take the witness' testimony; I ask that the patent be received in evidence as Plaintiffs' Exhibit 1.

The Court: It may be admitted and marked. [30]

Mr. Hackley: United States Letters Patent 2,-193,346, issued to Allan B. Ruddle March 12, 1940.

(The letters patent referred to were marked "Plaintiffs' Exhibit No. 1" in evidence.)

Mr. Hackley: Q. I show you a second patent, which is 2,204,913, and again ask you if that is a patent upon an application which you have referred to in your last testimony? A. It is.

Q. And that again——

A. That is dated September 25, 1937.

Q. Referring to the application?

A. Yes, that is right.

(Testimony of Allan B. Ruddie.)

Q. That again was prior to the time you met Mr. McSwain? A. That is right.

Q. Did you mention the fact to Mr. McSwain that you had only one application, or more than one application pending?

A. As I recall, I mentioned that I had two applications—three. There is another one besides this that was abandoned.

Q. But at one time you did have as many as three applications pending on this product; is that correct? A. Yes, that is right.

Q. And two have issued into patents?

A. That is right.

Q. Those are the patents which you have now identified? A. Yes.

Mr. Hackley: I ask that this second patent identified by the witness be received in evidence as Plaintiffs' Exhibit 2, being Patent 2,204,913, issued June 18, 1940, to the witness.

The Court: It may be admitted and marked.

(The patent referred to was marked "Plaintiffs' Exhibit No. 2" in evidence.)

Mr. Aurich: What is the purpose. [31]

Mr. Hackley: To illustrate the testimony.

The Court: Q. What is the date of the patent that you abandoned?

A. I don't recall the date of it.

Q. Was it following the second patent?

A. That is possible. I wouldn't recall the date without looking it up.

(Testimony of Allan B. Ruddie.)

Mr. Hackley: That application will be brought into the witness' testimony before we conclude.

Mr. Aurich: For the purpose of the record, your Honor, I may state that plaintiffs' counsel and I have stipulated that uncertified copies of letters patent may be introduced in evidence with the same force and effect as if certified.

Mr. Hackley: I overlooked one thing: Not only that stipulation, but also the understanding we had—I believe you will stipulate that we will divide the cost of the reporter's per diem and the Court's copy of the transcript, and that the costs of those two items may be taxed as costs in this case?

Mr. Aurich: That is correct.

Mr. Hackley: Q. Continue with your description of this first discussion you had with Mr. McSwain which you have said was either the very latter part of 1937 or early in 1938.

A. Mr. McSwain described how big his company was, how well he could sell it. I told him that we were afraid of Shell Oil Company or any large company that marketed things all over the world, because we were afraid that we would be mistreated.

Q. Did you explain what you meant by "mistreated"?

A. Yes; we were afraid that Shell would take this product and either shelve it or develop something out of it and sell it elsewhere, even sell abroad. And he assured me that they would never do such

(Testimony of Allan B. Ruddie.)

a thing. In fact, I told him that if I gave him this idea of marketing asphalt emulsion that they might take it for [32] themselves. And in that connection we were discussing the size of the market. I told him that we had received a letter from a foundry where it described the number of gallons of linseed oil that was on the market to be used.

Mr. Aurich: Perhaps I am a bit confused. Do I understand the witness is still talking about the discussion that he had with Mr. McSwain on Market Street?

Mr. Hackley: I intend to ask him that, Mr. Aurich. I don't know whether he is now adding to that, other discussions.

Q. Confine yourself, in this first description, only to the first conversation, Mr. Ruddie.

A. I misunderstood you.

Q. Have you gone a little bit beyond that?

A. Yes.

Q. At the risk of repetition, confine yourself now to the very first discussion and tell us, just as you remember it, the substance of that discussion between Mr. McSwain and yourself.

A. As I recall, I talked to him generally about it, and he was very much interested, and suggested that I meet him at his office at a later date, which was within the next day or two.

Q. Did you tell him anything about what you had in the way of a core oil on the asphalt emulsion?

(Testimony of Allan B. Ruddie.)

A. Yes, generally I did; yes. That is what made him interested.

Q. Did Mr. McSwain say anything to you about whether or not it was new to him to use asphalt in a core oil?

A. Yes; he said that they knew nothing about the core oil business, had never sold a core oil and knew nothing about it; that it was all new to them, but the idea of finding a new market for one of their products interested them.

Q. And he invited you, if I understand you, to come to his office immediately afterward and discuss the thing thoroughly?

A. Yes; that was within, I think, the next day or two I went to [33] his office.

Q. What was the substance of your next discussion with Mr. McSwain?

A. As I recall——

Q. Fix it as to time and place, also if anyone else was present tell us who.

A. As I recall that, I went to Mr. McSwain's office within the next few days after that, anyway, meeting him on Market Street, and while there Mr. Harsch, if I remember rightly, was there, and possibly Mr. Waller; I think he was, too.

Q. Who was Mr. Harsch?

A. Mr. Harsch was assistant to Mr. McSwain.

Q. In the asphalt department of the Shell Oil Company?

(Testimony of Allan B. Ruddle.)

A. In the asphalt department, yes, that is right.

Q. Who was Mr. Waller?

A. Mr. Waller worked in the same department. He was an engineer in that department, that assisted Mr. McSwain.

Q. Is that Mr. Arthur C. Waller?

A. That is right.

Q. Was anyone else present than yourself and Mr. McSwain, and possibly Messrs. Harsch and Waller?

A. No, that was all at the first meeting, as I recall it.

Q. And Mr. Peck did not go with you?

A. Not at that time, no.

Q. Now, tell us especially what the discussion was at this second meeting, and also as to approximately its date. Would that be again very late in 1937 or very early in 1938?

A. Yes, that is right.

Q. All right; continue.

A. Well, we discussed the subject there. As I recall it, we met—I told them that I had done this work over at the McCauley Foundry, and as I recall, the next—possibly the next day we went over to McCauley Foundry—that is, Mr. McSwain, Mr. Waller, and I am not so sure that Mr. Ray Harsch went along; but I recall that Mr. Waller and Mr. McSwain went over. [34]

Q. That is the same McCauley Foundry where you carried on your tests?

(Testimony of Allan B. Ruddle.)

A. Yes, that is right. I took them in to a bench where I had been working and introduced them to Otto Gosch, and Otto Gosch had been making these—he made some Union Diesel heads out of it that he was very much—he was very proud of.

Q. Made some cores for Union Diesel heads?

A. Yes, that is right.

Q. And cast heads from those cores?

A. Yes.

Q. Those cores were made with Cor-Min-Oil?

A. Yes, they were.

Q. Continue, Mr. Ruddle.

A. And he was very proud of them, and he showed these to Mr. McSwain and Mr. Waller, and then Mr. Waller went through the foundry trying to find out something about the foundry business.

Q. Were any cores made by you at that time, or by anyone else, for Mr. McSwain's benefit?

A. As I recall, yes, that I made some cores up at that time, and I think the following day, I think, we went back to see—we had a casting poured that evening—to see how the casting came out. I think Lydell Peck went with us the second day, if I recall, and I also think that Mr. Spotswood met us there the second day.

Q. This again is at the McCauley Foundry?

A. At the McCauley Foundry, yes.

Q. This is all within a few days of the very first meeting that you had with Mr. McSwain on Market Street; is that right?

A. That is right.

(Testimony of Allan B. Ruddle.)

Q. What was done at this second meeting at the McCauley Foundry? What took place?

A. Well, we went out to see the casting that had been poured. [35]

Q. You poured a casting the first day?

A. No, no, that was—you said the second day.

Q. Yes. I didn't understand you; I thought you said that you went out to see a casting which had been poured.

A. As I recall, we made a core the first day that we were there, and asked that they pour a casting for us, and the following day—and the following day, why, we went over to see the casting that had been poured.

Q. What else took place? Anything?

A. Well, there was a general discussion that went on there for several days. We went back to San Francisco. The next day I went to Mr. McSwain's office, as I recall. That may not have been the very next day, but the meetings continued, and it was decided then that some work would be carried on over at the Vulcan Foundry.

Q. Decided by whom?

A. By Mr. McSwain, I think. I think Lydell Peck had something to do with it, because he was a friend—had known Harold Martin, gone to school with him.

Q. Who was Harold Martin.

A. Harold Martin was manager of the Vulcan Foundry.

(Testimony of Allan B. Ruddie.)

Q. Shell proposed, did they, that these tests be taken over to the Vulcan Foundry? A. Yes.

Mr. Aurich: I object to that as leading, your Honor, contrary to the witness' testimony he just gave.

The Court: It is leading.

Mr. Hackley: Q. Mr. Ruddie, will you give us the precise picture of how it happened that the test work was taken over to the Vulcan Foundry?

A. Well, the Shell Company said, "Now, we really want to—in order to see this we ought to take it someplace where we can run some tests of our own on it, so we can witness it," and Mr. Waller was assigned to that to represent them and watch it. And Mr. Spotswood was assigned to the job of doing [36] the work. Waller was to watch it and report to McSwain about it.

Q. Then what took place?

A. Well, the work was carried on there at the Vulcan Foundry for several months. One of the first things that Mr. Spotswood determined was the cause of the cores softening. That was done within the next week or two, or three weeks, anyway, after he went to the Vulcan Foundry. He determined that the cores were softened by the gas from the fires.

Q. Is that this same core softening you referred to a little earlier, that produced apparently inconsistent cores under the same conditions?

A. Yes, that is what I tried to describe then.

(Testimony of Allan B. Ruddle.)

Q. Will you describe exactly what was discovered to be the cause of that inconsistency?

A. Well, the carbon dioxide gas that is generated from a burning oil affected the core, because it acted on the sodium silicate and caused it to disintegrate.

Q. That determination was made by Mr. Spotswood, you say?

A. Yes, that is right. I witnessed a demonstration up in Martinez. They had an electric oven and they caused CO₂ gas to go into the oven, and it would destroy the core, and then after the oven was freed of gas, why, they would make a perfect core. That is the way it was determined.

Q. Describe what you mean by the oven being freed of the gas. How was that accomplished?

A. I didn't understand the question.

Q. I say, describe what you mean by the oven being freed of gas, and describe how that was accomplished, if you know.

A. You mean how we got the gas out of the electric oven?

Q. Out of any oven.

A. Oh, if the cores are baked with a hood over them, or anything that keeps gas away from the cores, the cores are perfect.

Q. Were tests made along that line in your presence?

A. Oh, yes, many hundreds of tests. [37]

Q. At what time was it discovered, as far as you

(Testimony of Allan B. Ruddle.)

can recall, that the presence of carbon dioxide generated from the open flame was causing the cores, on occasion, to soften in the baking?

A. Could I have the question? I didn't get the first part of it.

(The question referred to was read by the reporter.)

A. You mean when Spotswood determined it? Mr. Hackley: Q. Yes.

A. That was within, I would think, three or four weeks, anyway, after the Shell started their work on it at the Vulcan Foundry.

Q. And that would put it in the month of what?

A. February; I would say that is in the February report of Spotswood, anyway.

Q. In 1938? A. In 1938, yes.

Q. You referred to a report. What did you mean by the February report of Mr. Spotswood?

A. There were two reports given to us, one—I think it is TAC No. 79, is the first, and TAC 90 is the second. Those are the only two reports that we had received until after the complaint was filed, I believe—anyway, until after the attempted cancellation.

Q. When did you receive the first of these two reports you speak of, approximately?

A. I can't recall when. I think Mr. McSwain, though, gave me those reports.

Q. Those were given to you by Mr. McSwain?

(Testimony of Allan B. Ruddie.)

A. As I recall, it was, but I don't remember now how I got them.

Q. I am going to show you a document——

Mr. Aurich: Let me see it.

A. That was an earlier report.

Mr. Hackley: Q. I show you a report of Shell Oil Company, Martinez Refinery No. TAC 79, dated February 24, 1938, and ask you if that is the report you just referred to?

A. Yes, that is the one. [38]

Mr. Aurich: We have no objection to the admission in evidence of those reports, Mr. Hackley.

Mr. Hackley: All right; then I will offer the report identified by the witness as Plaintiffs' Exhibit 3, being Shell Oil Report TAC 79, dated February 24, 1938.

The Court: It will be admitted and marked.

(The report referred to was marked "Plaintiffs' Exhibit No. 3" in evidence.)

Mr. Hackley: Q. Did you state when you received this report, Plaintiffs' Exhibit 3, Mr. Ruddie?

A. Could I state when?

Q. Yes.

A. No, but it wasn't long after—I think it was somewhere near that time, because we were discussing the CO₂ gas item, and they rendered us a report about it, I know that.

Q. Did you receive it before or after you made any contract with the Shell Oil Company?

A. I wouldn't recall.

(Testimony of Allan B. Ruddle.)

Q. I will show you a report, TAC 90, dated March 22, 1938, likewise the Shell Oil Company, and carrying the signatures of E. H. Spotswood and L. J. Snyder, and ask you if that is the second report you just referred to?

A. Yes, that is right.

Mr. Hackley: I offer the last report identified by the witness as Plaintiffs' Exhibit 4, Report TAC 90, dated March 22, 1938, of the Shell Oil Company.

(The report referred to was marked "Plaintiffs' Exhibit No. 4" in evidence.)

Mr. Hackley: Q. Will you continue with your description of the work that was done in February and through March of 1938 at the Vulcan Foundry with reference to Core-Min-Oil, tests of the product, of cores and castings, and so forth?

A. Well, I know I went to the Vulcan Foundry several days a week with Mr. Waller over a period that ranged for several months—two or three months, [39] anyway, and we used to go there several times a week and witness the work that was going on there. It was carried on both at the Vulcan Foundry and up at Martinez, and we used to go each place.

Q. Who is "we"?

A. Mr. Waller and myself.

Q. Who carried on the actual working in the foundry? Do you remember the names of any of the men?

A. Yes; there was a core maker there by the

(Testimony of Allan B. Ruddie.)

name of Manuel; I don't know his last name. But Manuel did the work on the cores there, and the Shell Company brought an electric oven down there, and then Spotswood did most of the work on the cores. He was there to take core boxes and make up the cores and bake them in his electric oven.

Q. That is at the Vulcan Foundry?

A. At the Vulcan Foundry, yes.

Q. Did anyone else at the Vulcan Foundry work on or in connection with this core making with Core-Min-Oil?

A. No, I think he is the only one that I saw make anything out of it. They were awfully busy when they were working, and I think they only worked about five days a week, but they were busy when they were there.

Q. Were any castings poured of the cores made in February and March of 1938?

A. Yes, there were many castings poured there, mostly of Merco Nordstrom valves. They had a contract with the Merco Nordstrom Valve Co., and they made lots of Merco Nordstrom valves, I know, at that time, and we used lots of those in that.

Q. Did you observe any of the cores that were made by Mr. Spotswood and by this man Manuel which you speak of, with Core-Min-Oil?

A. Oh, many of them.

Q. Confine yourself to February and March, or January, February and March, 1938. You observed that during that period, did you?

(Testimony of Allan B. Ruddle.)

A. Yes, I did.

Q. What were the nature of those cores made with Core-Min-Oil in [40] comparison or contrast, as the case may be, with the cores made in like manner at the McCauley Foundry?

A. They were the same. As far as I could tell, they were the same.

Mr. Hackley: Q. Were any castings poured from cores to your knowledge made at the Vulcan Foundry?

A. Many of them.

Q. Were those castings poured at the Vulcan Foundry?

A. Yes, many of them at the Vulcan Foundry.

Q. You understand that this is in that period January through March of 1938?

A. Yes, that is what I am testifying to.

Q. Did you observe any of those castings?

A. I did.

Q. How did they compare or contrast, as the case may be, from your observation, with the castings which you testified were made with Core-Min-Oil cores at the McCauley Foundry?

A. They seemed just the same, as far as I could tell.

Q. Did you make any effort to observe or determine the percentage of castings, if any, that were lost in the pouring at Vulcan Foundry using Core-Min-Oil cores?

A. None were lost. There was never one lost with anything poured with this material while I was present.

(Testimony of Allan B. Ruddie.)

Q. Did Mr. McSwain personally observe any of the work that was done [41] at the Vulcan Foundry with reference to the cores that were made, or castings that were poured therefrom, to your knowledge?

A. Yes; I went with him several times.

Q. Did he express himself to you on the cores and castings, what he thought of them?

A. Yes, he did.

Q. What did he say? In this, again, I want you to confine yourself to the period from January through March of 1938.

A. Well, he was very enthusiastic about the products that we were making.

Q. What did he say? Can you describe his words? Give the substance of his statements.

A. Well, he said they looked as good as any cores that he—that is, comparing the other cores over at the Vulcan Foundry, he said they looked just the same to him.

Q. Did he observe any of the castings that were made from those cores?

A. Yes; we went out, and went with both Mr. McSwain and Mr. Waller, out and examined many castings that were poured, and they commented on the fact how smooth the castings were.

Q. Mr. Waller and McSwain did?

A. Both of them did, yes.

Q. Did Mr. Waller ever comment on the cores themselves? A. Oh, yes, many times.

(Testimony of Allan B. Ruddle.)

Q. What were his comments?

A. That they were perfect cores—outstanding cores. They were very enthusiastic about the material we had.

Q. Did Mr. Spotswood ever discuss cores or castings made from the cores with you, express himself on that?

A. Oh, he did, yes, many times.

Q. What were his statements and expressions?

A. He was very enthusiastic, too, about the wonderful cores that we were making.

Mr. Aurich: Is this still the period between February and March, 1938? [42]

Mr. Hackley: Yes.

Q. That is correct, isn't it, Mr. Ruddle?

A. That is right.

Mr. Hackley: I so understand all of his testimony, Mr. Aurich.

Q. Did you ever have any discussions or was anything said about any commercial arrangements between yourself, or yourself and Mr. Peck, and the Shell Oil Company, relating to Core-Min-Oil?

A. Why, yes, that was the reason that I went to the Shell Oil, why I talked to McSwain in the first place.

Q. Will you describe what you said to Mr. McSwain with reference to your fears, with reference to what you called your idea, and also describe what you mean by your idea?

A. Yes. When I first talked to Mr. McSwain I

(Testimony of Allan B. Ruddie.)

told him that this looked like a new market for asphalt, and that we were afraid that we would lose this idea if we took it—divulged everything we knew to the Shell Oil Company; that they themselves were big marketers all over the world, and we were afraid if we told him, and he said, “Shell Oil Company would never treat you that way.” I remember saying to him, “Well, so long as you are with the Shell, I wouldn’t feel afraid.” “Well,” he says, “You needn’t to feel [43] afraid, anyway.”

Q. Was anything ever said about a contract between yourselves and the Shell Oil Company?

A. Well, after we had run these tests out here at the Vulcan Foundry, Mr. McSwain asked for a contract.

Q. Tell us when, where, and under what circumstances.

A. After we had determined the CO₂ gas—how to prevent the CO₂ gas by putting hoods over the cores or an indirect oven.

Q. That is, how to overcome this inconsistency you have described?

A. That is right. Then Mr. McSwain wanted to talk contract.

Q. Did he discuss contract with you—bring up the subject himself? A. He did.

Q. Who was it first mentioned the making of a contract, you or Mr. McSwain?

A. Mr. McSwain was the first one to ask for a contract.

(Testimony of Allan B. Ruddle.)

Q. What did you say?

A. We told him all right, we would enter into a contract with him. Well, he said he would have his legal department get up something in the way of terms of the contract that we could discuss.

Q. Was that done?

A. Yes, that was done, and that was brought over to Mr. Peck's office at one time.

Q. Was a contract ever signed as a result of those negotiations? A. It was.

The Court: Q. Who was the contract drawn by? A. By the Shell Oil Company.

The Court: "James F. Peck of San Francisco, California, hereby declares that he has no interest in the above agreement and the subject matter thereof, and consents and approves of its execution."

Q. What does that mean?

A. Well, the Shell Oil asked for that to be put on there; they wanted to know whether he had any interest in it. Lydell Peck is the one who had the interest in it, and not [44] his father, but they wanted him to sign the contract if he had any interest.

Mr. Hackley: Q. Incidentally, what was Mr. James F. Peck's age at the time this contract was signed?

A. Seventy-eight, as I recall.

Q. I show you a document entitled, "License Agreement," bearing date April 8, 1938, and ask you if you can identify it?

(Testimony of Allan B. Ruddle.)

Mr. Aurich: I will stipulate that is the contract that was entered into between the parties, Mr. Hackley, if that is agreeable.

Mr. Hackley: Q. That is the agreement?

A. Yes, that is the agreement.

Mr. Hackley: I offer as Plaintiffs' Exhibit 5, License Agreement dated April 8, 1938, between Shell Oil Company as licensees and Messrs. Lydell Peck and Allan B. Ruddle as licensors, the Shell Oil Company signing by F. A. C. Guepin, vice-president, and A. R. Bradley, secretary, with J. F. McSwain as a witness; the document bearing the signatures of Messrs. Lydell Peck and Allan B. Ruddle, and something in the nature of a waiver, or whatever it may be, appended thereto, signed "James F. Peck," witnessed by J. Gratama.

Incidentally, Mr. Aurich, we can identify, can we not, Mr. Gratama, as attorney for the Shell Development Company?

Mr. Aurich: No, I can't identify him that way. I can identify him as a person who is employed by Shell Oil Company. I don't know his exact capacity at all. He is an attorney-at-law, I am advised.

[45]

Mr. Hackley: And annexed to the document is the evidence of authority of the signatories of Shell Oil Company on the document, subscribed by A. R. Bradley, secretary, with seal annexed, likewise bearing the date April 8, 1938.

(Testimony of Allan B. Ruddle.)

(The license agreement referred to was marked "Plaintiffs' Exhibit No. 5" in evidence.)

Mr. Hackley: Q. At the time you took Core-Min-Oil to the Shell Oil Company at the outset of your discussions with them, did you make any statements or representations to Shell as to whether or not the product was in finally developed form or otherwise? A. Yes, I did.

Q. Describe what you said in that connection.

A. I described the product to the Shell.

Q. To whom did this description go?

A. To Mr. McSwain, to Mr. Waller and Mr. Spotswood, and Mr. Gratama and Mr. Zublin, and I think Mr. Warren.

Q. Mr. Harsch?

A. There were many of them there.

Q. Did you describe it to Mr. Harsch?

A. Mr. Harsch, too. In fact, Mr. Harsch graded some sand, thought maybe he could overcome the—. The gas would also cause the solution to go down a little bit and make it stronger, or harder, on the bottom of the core, and Mr. Harsch thought by grading the sand we would be able to overcome that. But anyway I described to the Shell that we were having this difficulty. [46]

Q. Mr. Ruddle, you have named here first a number of people who have not otherwise been identified in the record. Who was Mr. Gratama?

A. Mr. Gratama was one of the people that ne-

(Testimony of Allan B. Ruddle.)

gotiated the contract, with Mr. McSwain, and represented that he was attorney for the Shell Oil Company, and Shell Development Company, he told us, the patent—the head of the patent department, he told us.

Q. And who was Mr. Zublin that you mentioned?

A. Mr. Zublin also worked for the Shell Development Company. He was an engineer or chemist?

Q. Mr. Warren?

A. Mr. Warren was a chemist up at Martinez, that worked in the asphalt department.

Q. Shell Development Company or Shell Oil Company?

A. No; Shell Oil Company, I think.

Q. You have mentioned a number of people to whom statements were made with reference to the state of the development of your product. Were these statements made all at one meeting, or at different times?

A. No, no, this was something we talked of—went over a period of weeks. Everybody discussed part of it; everybody was trying to find the reason for it, that I talked to.

Q. Did you represent to the Shell Oil Company, or anybody in connection with it, that the product was in completely developed form when you first went there?

A. No, we did not.

(Testimony of Allan B. Ruddle.)

Mr. Aurich: Objected to as leading.

The Court: It is leading.

Mr. Hackley: Q. You have described the fact that you had told these various men in the Shell Oil Company about this carbon dioxide [47] problem; you have described the solution which was discovered for that problem. Were any other problems in connection with Core-Min-Oil described to anyone, or were there any other problems?

A. Oh, yes; we were talking—we discussed with them the fact that the Core-Min-Oil dried on the benches badly; we had to put wet sacks over it to keep it so they could use it.

Well, there were—I have described the gas that was bothering, and how we overcame that by putting covers over it or had an indirect oven.

Q. Do you remember anything else in that connection?

A. It seems to me there were a few minor things that were going to be corrected, but I don't recall just at this minute.

Mr. Aurich: I move to strike out the answer of the witness, your Honor, unless the proper foundation is laid as to time, place, and parties present. I have no way of knowing when these conversations occurred.

Mr. Hackley: I will go into that, Mr. Aurich.

Q. You have stated that you had described these things. To whom did you describe them? All of the individuals that you have named?

(Testimony of Allan B. Ruddie.)

A. Yes, all the individuals I mentioned a moment ago; not all at [48] one time, but at different times. This went on over a period of several weeks that we were discussing this, we were trying—we had a few things that were wrong with Core-Min-Oil, and we tried to overcome those particular things, and the Shell Company employees, the different ones I have named, were interested in overcoming these particular things that I mentioned.

Q. Can you fix any particular time or place of any one of these conferences, or did this just occur from day to day during this three-month period that you have described, from January through March of 1938?

A. Well, that started in the very beginning when I went to them. The first thing I told them, I think——

Q. You told who?

A. I told Mr. McSwain one of the very first things, the difficulty I had there was something I couldn't understand, why I could put two cores in the oven and one would come out good and the other wouldn't, made out of the same batch.

Q. And you described these other problems to Mr. McSwain at that time?

A. Oh, yes, because we made cores, we poured castings, and we did everything from the very beginning.

Q. This is all before the execution of the contract, Exhibit 5?

(Testimony of Allan B. Ruddle.)

A. Oh, yes. After the castings had been poured, and cores had been made by the hundred, they then asked for a contract.

Q. Did anybody in connection with the Shell Oil Company state, prior to the making of the contract, whether or not Core-Min-Oil was considered to be a commercial product by them?

A. Yes, after they determined the cause of the core softening, then Mr. McSwain talked about marketing it—said it was ready to [49] market, but he asked that we let them make a lot of cores; they wanted a lot of castings to build up a foundation for sales purposes. And they did; they made many castings for that purpose.

Mr. Hackley: Q. All before the signing of the contract?

A. No, this was after the signing of the contract, I would think, but it was during that period, I know.

Q. At the time that you took Core-Min-Oil to the Shell Oil Company in the first instance, state whether or not there was any discussion of what you have described as your problem of emulsifying the asphalt and the solution?

A. Maybe I didn't understand the question.

(The question referred to was read by the reporter.)

A. No, there was nothing at that time.

Mr. Hackley: Q. When was that discussed, if at all?

(Testimony of Allan B. Ruddie.)

A. Well, it was discussed later; after the contract had been signed Mr. McSwain told me that they had determined—that the patent department had advised him that they would have to put it in one package in order that they could control the sale of asphalt; that a patented article could not force the sale of an unpatented article—something to that effect.

Q. That is what Mr. McSwain told you?

A. That is what he told me, yes, and that also by putting it in one package he could get a better price, too. He told us that.

Q. When you first took Core-Min-Oil to the Shell Oil Company, was [50] it in one package or two packages?

A. No, I took it in two packages.

Q. Will you describe just what you mean in that connection?

A. Well, it had two containers: one contained the solution that I described; the other had the asphalt emulsion.

Q. How were the cores made with Core-Min-Oil during this period of work prior to the making of the contract, at the Vulcan Foundry, with reference to procedure of introducing the ingredients, the sand, the solution and the asphalt?

A. They measured out the right amount of sand and they poured the solution—right amount of solution, and then the right amount of—I think the solution was agitated first, and this asphalt

(Testimony of Allan B. Ruddle.)

emulsion was only agitated slightly. It doesn't take much to put that in after you put the solution in.

Q. Those were done in successive steps, were they?

A. Yes, that is the way it was done at the Vulcan Foundry.

Q. Were any attempts made in your presence, or by you in the presence of representatives of the Shell Oil Company, prior to the making of the contract, to introduce the asphalt emulsion and solution as a single step, first mixing the two together, and then mixing the result with the sand?

A. Yes, we did that. I couldn't tell any difference in the result, but we thought that—the reason for putting them in as I described is that it doesn't hurt the solution in the machine to put it thoroughly through the sand, but you can't agitate the asphalt emulsion very much or it will break the emulsion.

Q. Prior to the making of the contract what, if anything, did anybody in connection with the Shell Oil Company say about the fact that you worked from two sources rather than one package, as you describe it? [51]

A. No.

Mr. Hackley: Q. Did you, prior to the making of the contract, describe to the Shell Oil Company any particular advantages of Core-Min-Oil over other core oils?

A. Oh, yes, certainly I did.

Q. Whom did you make those statements to?

(Testimony of Allan B. Ruddie.)

A. I made them to Mr. McSwain, to Mr. Waller, to Mr. Harsch, and to Mr. Spotswood, I would say.

Q. Tell me what you said in that connection to Mr. McSwain.

A. I told Mr. McSwain that the baking time of these cores would save foundry people about 66-2/3 of the time to bake the cores. I also told him that the price would be a great deal less than linseed oil. That was the yardstick to measure foundry practice, as I understood.

Those are the principal things that I told him. The fact that it made better castings with fewer losses; that was our experience.

Mr. Hackley: Q. Do you recall any particular time or place [52] where you made these statements to Mr. McSwain, or was this all over that general period?

A. That is right; I made them many times.

Q. Did you make them in the presence of other people at any time? A. I possibly did.

Q. Who?

A. Well, I enumerated the different members of the Shell Oil Company that we were dealing with at that time, and I know I made it to all of them.

Q. Do I understand you made these same statements at one time or another to all of those individuals you named? A. Yes, I did.

Q. You may have made it to one or more of those together, or just to one separately?

A. That is right.

(Testimony of Allan B. Ruddle.)

Q. Prior to the making of the contract itself—that is, prior to April 8, 1938, the date of Exhibit 5—did you disclose the formula of the solution included in the Core-Min-Oil to Shell Oil Company or any of its employees? A. No, I didn't.

Q. Did you furnish samples of that product to Shell or any of its employees?

A. Yes, we furnished samples to them. In fact, a Mr. Ames, at the Martinez laboratory, told me that he had tried to analyze that sample that I gave him, and that he missed it.

Q. When did you give him the sample?

A. I gave it to him—oh, I don't remember the date, but it was somewhere near the end of '37; I gave it to him for another purpose.

Q. You gave it to him right at the start of all these negotiations, is that right?

A. Yes, that is right.

Q. Did you subsequently give the formula for the solution to the Shell Oil?

A. After the contract was signed, yes.

Q. To whom and when?

A. As I recall, I gave it to Mr. Gratama and Mr. Zublin, and I think Mr. McSwain.

Q. Mr. Gratama and Mr. Zublin of the Shell Development Company? [53]

A. That is right.

Q. And Mr. McSwain of the Shell Oil Company? A. That is right.

(Testimony of Allan B. Ruddle.)

Q. And when did you give it to them?

A. That was just after the contract was signed, possibly the next day.

Q. Did you give to anybody representing the Shell Oil Company the formula for making Core-Min-Oil cores, including the asphalt emulsion but not including the detail of the solution itself, prior to the making of the contract?

A. Oh, yes, I did; I gave him the solution.

Mr. Hackley: Q. Whom did you give that formula to?

A. I gave it to Mr. Spotswood, and I think Mr. Waller and Mr. McSwain.

Q. A moment ago you said that you gave samples of the solution, that is, quantities of the solution itself to these men, is that right?

A. That is right. It had red oil in it at the time. I think it is—I was attempting to put dry mineral oil in it when I gave it to them.

Q. And when the representatives of the Shell Oil Company, as you have described, were making cores at the Vulcan Foundry prior to the making of the contract, did these individuals make up the Core-Min-Oil—that is, make up cores with Core-Min-Oil?

A. Yes, they did.

Q. Where did they get the solution to make up those cores?

A. I made the solution up at my apartment here in San Francisco and took it in a can up to Martinez.

(Testimony of Allan B. Ruddlee.)

Q. And gave it to whom?

A. Gave it to Mr. Spotswood. [54]

Q. Did you take any over to the Vulcan Foundry during this period?

A. It seems to me that it was later, but I did take some to the Vulcan Foundry.

Q. What formula did you give to the Shell Oil Company prior to the making of the contract for making a suitable core with Core-Min-Oil?

A. You mean the sand and the solution and the asphalt?

Q. Yes.

A. The same formula that I related here this morning.

Q. Will you repeat it, please, as far as you gave it to them, now, prior to the making of the contract?

A. 1750 cc's of dry sand, 80 cc's of solution, and 50 cc's of asphalt emulsion.

Q. Did you give them mixing instructions, the procedure of mixing the sand and the solution and the asphalt? A. I did.

Q. And what were those?

A. Just the same as I have related here.

Q. Will you repeat it again?

A. 1750 cc's—

Q. I mean the mixing instructions. I wanted to know if you described how to mix the sand and the other ingredients.

A. Yes, I told them to measure the sand first,

(Testimony of Allan B. Ruddie.)

and then put the solution in first and mix it thoroughly, and then add the asphalt emulsion and thoroughly mix.

Q. And that gives a finished core sand, does it?

A. That is the finished core sand.

Q. What is the next step in the making of the core after that is completed?

A. Then it is put into the core box, and some are cooked in the core boxes—the cope—and others are taken out of the core boxes and put on a flat plate that is put into the oven, and baked.

Q. Both procedures were offered with Core-Min-Oil, were they?

A. Oh, yes, yes. In Macauley they do it entirely—they take it out of the cope, but in the Vulcan Foundry they get the lower half, [55] I believe—they form the top and put on top of it, and then take the top off, and it is baked with one-half.

Q. You referred to the cope. What do you mean by that?

A. That is the top of the core box, and I think the lower one is called the drag.

Q. Now, if I understand your testimony, you described to Shell, or its representatives—Mr. Spotswood, Mr. Waller, Mr. McSwain—prior to the making of the contract, the formula for making Core-Min-Oil, and did not tell them the exact formula of the solution used in Core-Min-Oil; is that correct?

A. That is right.

Q. You described to them, and they followed

(Testimony of Allan B. Ruddie.)

your description and made cores by this procedure you have described, prior to the making of the contract; is that true? A. That is right.

Q. Then immediately after the contract was signed you disclosed to the Shell Oil Company the exact formula for the solution; is that correct?

A. That is right.

Q. Other than the disclosure which you have described having made prior to the making of the contract, did you describe to Shell any other information, or give to Shell any other information which you had learned in the making of cores with Core-Min-Oil?

A. In fact, I described all I had learned in the way of making cores,—how the asphalt could be used in this material. That plays an important part, because it makes the material friable, so that the cores would pour out.

Q. Did you describe to them everything that you knew about core making prior to the making of the contract, except the formula of the solution itself?

A. Everything that I knew, yes.

Q. Did you impose any condition upon the representatives of the Shell Oil Company, or the Shell Oil Company, at the time you made the disclosures before the making of the contract? [56]

A. I certainly did.

Q. Describe what you did in that connection, to whom you said it, and what you said.

You understand, this is before the making of the contract, Mr. Ruddie?

(Testimony of Allan B. Ruddie.)

A. Yes. We were afraid if we told our ideas to the Shell Oil Company, that they would not make a contract with us, but would use those ideas to develop something for themselves. So when we told them about our idea of using asphalt in the manufacture of Core-Min-Oil, why, we told them we would give it to them with the understanding, of course, that we would have to work out a deal with the Shell Oil Company. [57]

Q. Would you fix the time and place of that, Mr. Ruddie; whom it was told you, and if there was anyone else present describe who it was?

A. Well, that was with Mr. McSwain, and I would say that was just prior to our beginning of any work, showing them anything.

Q. What did Mr. McSwain say to you about your statements?

A. He said it would be treated as I had asked that it be treated: that they wouldn't use it unless we entered into some kind of an agreement. [58]

Q. At the time we took an adjournment, Mr. Ruddie, you were testifying that you had made the disclosures of the Core-Min-Oil product, the method of preparing cores with Core-Min-Oil, to the representatives of the Shell Oil Company; you named Mr. McSwain, Mr. Waller, and Mr. Spotswood, I think, among others, and this was prior to the making of the contract; and that at the time you stated to them that you expected them to hold these disclosures in confidence and not utilize them except

(Testimony of Allan B. Ruddie.)

under an agreement with you. Did any of these men make any response to your request in that regard, and if so, what was it?

A. Yes, each and every one of them promised to keep this as a secret and use it as a secret pending the entering into a contract.

Q. Did you have any discussion with anybody in connection with the Shell Oil Company as to whether or not representatives of Shell whom you talked to had any knowledge prior to your disclosure of the subject to them that asphalt or asphalt emulsions were useful in core oils?

A. Yes; I talked to Mr. McSwain, and in fact, Mr. Waller, Mr. Spotswood, and in fact, each member that I had anything to do with, with the Shell, and they all said Shell Oil Company had never done anything on core oil; it was a subject they knew nothing about.

Q. Did any of them state whether or not they or Shell Oil Company, to their knowledge, knew of it prior to your disclosure of the fact to them that asphalt or asphalt emulsions were useful in core oils?

A. No; they said it was an absolute new idea to them. [59]

Q. And when did you first make such a statement as that to Mr. McSwain, if he was one of those you spoke to?

A. But I first talked to Mr. McSwain.

Q. In your very first conference?

(Testimony of Allan B. Ruddle.)

A. In my very first conversation with Mr. McSwain.

Q. At that time, do I understand from what you said, that Mr. McSwain said it was all new to him?

A. Yes, he said this was a new idea, so far as he was concerned; he never heard of such a thing.

Q. Do I understand from your testimony that Mr. Waller and Mr. Spotswood similarly expressed themselves? A. Yes, they did.

Q. At the time of your discussions prior to the making of the contract with the Shell Oil Company about the subject of Core-Min-Oil, did any representative or representatives of Shell discuss with you the volume of sales which you might expect if you were to make a deal with them?

A. Yes; Mr. McSwain did.

Q. And when was that?

A. Well, that was during the early part of our talks on this subject. We discussed the size of the market. I had a letter that we had—that Lydell Peck had received from The Foundry Magazine. In this letter it gave the gallonage of linseed oil that was sold during the year over a period of several years, and when we talked to Mr. McSwain we discussed that possibly this product was good enough to take that [60] linseed market.

Mr. Hackley: Q. You referred to a letter. For the purpose of illustrating your testimony, I ask you if this is the letter that you referred to (showing)?

A. Yes, that is the letter.

(Testimony of Allan B. Ruddle.)

Q. Mr. Ruddle, you are referring to a letter entitled "The Foundry," dated November 26, 1937, Cleveland, Ohio and signed by "The Foundry," apparently a magazine title, G. A. Pope, assistant advertising manager; is that correct?

A. Yes, that is right.

Q. I understand from your testimony that that letter was shown to Mr. McSwain. A. It was.

Q. In one of these early conferences with him?

A. It was.

Mr. Hackley: For the purpose of illustrating the witness' testimony, I offer as Plaintiffs' Exhibit 6 the letter identified by the witness.

Mr. Aurich: I have several objections to that letter, your Honor. This is a letter on the letter-head of The Foundry, dated November 26, 1937, and at the conclusion appears a signature of apparently a man by the name of G. A. Pope. The letter has not been sufficiently authenticated, or at all authenticated, and a mere reading of the letter will show that it is full and replete with hearsay statements. I object to it as being hearsay, no foundation being laid.

Mr. Hackley: Your Honor, I think the objection goes to the weight rather than the substance. I am merely offering it to illustrate the witness' testimony, not for its contents.

The Court: The objection will be sustained. [61]

Mr. Hackley: May I offer the letter, then, for identification, your Honor?

(Testimony of Allan B. Ruddle.)

The Court: Let it be marked.

(The letter referred to was marked "Plaintiffs' Exhibit No. 6 for identification.")

Mr. Hackley: Q. Will you continue now with your discussion with Mr. McSwain about the volume of sales of Core-Min-Oil?

A. Well, in discussing with Mr. McSwain the amount of sales that we discussed we agreed that the sales—that is, Mr. McSwain and Mr. Peck and myself, and I think Mr. Waller and several others in the Shell Oil Company; I don't know their names. But Mr. McSwain said they had looked into the market and that the market was in the neighborhood of some 23,000,000 gallons of linseed oil.

Mr. Aurich: I wanted to have these conversations fixed, without my continuing to have to object to them all the time. I don't know when these things are supposed to have taken place. It could have been in July, 1938.

The Court: The record will disclose that there are very few conversations developed for which the proper foundation has been laid. Counsel is entitled to that under the rule. Try to observe it. Proceed with this case.

Mr. Hackley: Q. Mr. Ruddle, will you tell us when and where this conversation took place, particularly what parties were present, if anyone besides yourself and Mr. McSwain?

A. Mr. McSwain and Mr. Waller, I know, were present, and that was just prior—just after our first

(Testimony of Allan B. Ruddie.)

meeting—within the next few weeks, I would say. The first meeting was the end of 1937 or the first part of 1938. [62]

Q. Would you fix the conversation you are now referring to as being in the month of January, 1938, or the month of February, 1938?

A. Well, it is possible it was in the first part of February, but I wouldn't attempt to fix the date exactly. It was during our first negotiations with the Shell Oil Company.

Q. Where was this conversation? Where did it take place?

A. In Mr. McSwain's office.

Q. In the Shell Oil Building in San Francisco?

A. In the Shell Oil Building in San Francisco.

Q. Now will you continue with the discussion of that subject at that meeting?

A. We were trying to get Mr. McSwain to—we were trying to interest the Shell Oil Company in this, and we were discussing it generally with them. Those discussions went on for several weeks, and in these discussions these conversations took place. Does that answer your question?

Q. Did you have a particular conversation with Mr. McSwain at which time you discussed this question of sales volume? You said Mr. McSwain represented to you certain things about the volume of core oil being consumed, and things of that sort.

A. Yes; that was during the time we were negotiating a contract.

Q. Was this prior to April 8, 1938?

(Testimony of Allan B. Ruddie.)

A. Yes, that was prior to April 8. The time——

Q. Can you state approximately how long prior?

A. Well, the time that we were negotiating the contract, after several weeks; it was during that time; we were trying to get the Shell Oil to put a minimum gallonage in there, a guarantee of taking so much, and they objected to that.

Mr. Aurich: I will object to any questions about minimum gallonage, or any discussion about the negotiations for the contract. The contract speaks for itself in that regard. [63]

Mr. Hackley: I agree in that respect, your Honor. I did not ask the witness to give that testimony, and it may go out as far as I am concerned.

Q. Mr. Ruddie, I want you not to direct yourself to the contract and things relating to it. Did Mr. McSwain discuss with you the question of gallonage which you might expect to enjoy?

A. Yes, he did.

Q. If you made a contract with the Shell Oil Company? A. Yes, he did.

Q. Will you tell us when that discussion took place as closely as to date as you can?

A. It was probably the first part of April, 1938, —maybe the latter part of March, 1938—he submitted some figures, and on it it had several different prices, and on that list there was—and I think it ran from one million to ten million gallons. That was along when we were talking about the amount that the Shell should sell.

(Testimony of Allan B. Ruddie.)

Q. Was this discussion before or after April 8, 1938?

A. Oh, that was prior.

Q. I show you a memorandum which is Exhibit 4 to the deposition of J. F. McSwain, and ask you if you can identify that (handing paper to witness)?

A. Yes, that is the memorandum I referred to.

Q. That memorandum was handed to you by Mr. McSwain, was it?

A. That is right.

Q. Was it prepared in your presence?

A. No; he brought it with him over to Mr. Peck's office at that time.

Q. This was prior to April 8, 1938?

A. Oh, yes, that was prior to April 8.

Q. Who was present when this memorandum was given to you?

A. Mr. Lydell Peck was present, and James F. Peck, his father.

Q. Anyone else?

A. No. Mr. McSwain and myself, I think, were [64] there.

Q. No one else from the Shell Company, as far as you know?

A. No. No, I am sure there weren't.

Q. It was at Mr. J. F. Peck's office?

A. That is right.

Q. Where was that office located?

A. In 814 Crocker Building.

Q. San Francisco?

A. San Francisco.

Mr. Hackley: I offer as Plaintiffs' Exhibit 7

(Testimony of Allan B. Ruddle.)

the memorandum identified by the witness, and which is Plaintiffs' Exhibit 4 to the McSwain deposition of December 3, 1940. This is a photostatic copy of the original.

I assume you have no objection to the form, Mr. Aurich?

Mr. Aurich: I have no objection to the substitution of a photostatic copy. However, if the Court please, I would like to ask one or two questions concerning this document, to lay the foundation for my objection. May I proceed, your Honor?

The Court: You may.

Mr. Aurich: Q. With respect to the time the contract was entered into, Mr. Ruddle, how long prior thereto did Mr. McSwain hand you this document that has been identified?

A. It was prior; I don't know how long prior.

Q. But that was during the negotiations for the contract, was it?

A. Yes, I would say it was.

Q. And that was because there was some controversy between you and Shell as to whether or not the contract should contain a provision for the payment of minimum royalties?

A. That is right.

Mr. Aurich: I object to the document on the ground that is part of the negotiation leading up to the contract and it merged therein.

Mr. Hackley: If your Honor please, this document is not offered in any way in connection with

(Testimony of Allan B. Ruddle.)

that contract or any of its [65] terms. This is merely offered to set a measure for the question of damage in the non-performance of this agreement. The contract has no provision for any minimum royalty, for minimum gallonage; it merely provides that the Shell Oil Company shall diligently and faithfully pursue the contract by the sale of the product. In that connection we have the burden of showing, as best we can, what might have been performance under that contract by the Shell Oil Company. One of the methods of proving that is to show the representations that were made, not as part of the contract, but by the Shell Oil Company's representatives, as to the potential market for the product, the amount of product which they felt they could sell, and that is the only purpose for which this document is offered.

The Court: But that document, as far as the testimony goes, has to do with the contemplated clause in the contract taking care of gallonage. It was in the contract.

Mr. Hackley: There is no such clause in the contract, your Honor.

The Court: I will sustain the objection.

Mr. Hackley: Q. Mr. Ruddle, in your testimony you stated that the contract of April 8, 1938, Exhibit 5 here, was entered into on that date. Now, will you describe briefly, so far as you know, what was done during the period of the option term of that contract, which in the contract is set as a period

(Testimony of Allan B. Ruddle.)

of six months, commencing April 8, 1938—and by “done,” I mean done by Shell Oil Company, in reference to the Core-Min-Oil subject?

Mr. Aurich: You mean so far as he may have personal knowledge, Mr. Hackley?

Mr. Hackley: So far as he knows, yes.

A. Well, the Shell Oil Company made many tests and did a lot of laboratory work at Martinez, and also at the Vulcan Foundry. I [66] witnessed a great deal of that work for the first six months, and I went with Mr. Waller and witnessed these tests.

Q. What were the nature of the tests? Did you follow them to observe them?

A. Yes; they made cores—they made cores in ovens at the Vulcan Foundry. Manuel at first—the Vulcan foundry man—made the cores; they were baked in the—after they determined the CO₂ gas bothered the cores, and they put hoods over them, we baked many of those cores in the Vulcan Foundry ovens.

Q. What type of ovens do they have at the Vulcan Foundry?

A. They have open fire ovens, where the flame comes in contact with the cores.

Q. What type of ovens do they have at the Macauley Foundry?

A. They have the same there, open fire ovens.

Q. Do they have any indirect ovens at either of those places? A. No, they do not.

(Testimony of Allan B. Ruddle.)

Q. Other than the electric oven you referred to this morning, that was brought to Vulcan by Mr. Spotswood? A. Yes, that is right.

Q. What were these cores made with after the contract, now, was executed? Were they made with Core-Min-Oil?

A. Yes; at least the early ones were. But I understood they were trying to put—that is, Shell was trying to get the solution and the asphalt in one container.

Q. Just a minute. What do you mean by “understood”?

A. Well, McSwain had told me that they wanted to get the solution and the asphalt in one container. [67]

Q. Mr. Ruddle, I asked you earlier, and I will ask you again; Whenever you mention a conversation, please tell us who was present, all of the parties that were present, where it occurred, when it occurred as best you can fix the date, and then go into what took place.

A. Well, that would be impossible, because that happened four years ago, and I couldn't testify to every conversation.

Q. As closely as you can, from your recollection. You have just testified that sometime after April 8, 1938, you had a conversation with Mr. McSwain about the subject of putting the ingredients of Core-Min-Oil in a single carton, package or container, or whatever it was. When did that occur with reference to the making of the contract?

(Testimony of Allan B. Ruddie.)

Mr. Aurich: Mr. Hackley, I may help you a little bit here. When I keep asking for these dates, I appreciate the fact that those conversations between the plaintiffs and the representatives of the defendant occurred over a period of time, and it would be practically impossible to fix a specific day. It would satisfy my purposes if he would just fix a period of time between which it occurred, so that we know whether it is January, 1938, or December, 1938.

Mr. Hackley: You understand this group of questions are, at the outset, limited to the period of the option of the contract, which is six months.

Mr. Aurich: You mean between April and October, 1938?

Mr. Hackley: Yes.

Mr. Aurich: That is satisfactory.

Mr. Hackley: I tried to limit it to that. [68]

Mr. Aurich: I have no objection to that, if that is the period of time within which the conversations took place.

Mr. Hackley: Q. Was this in the early part or latter part of that period?

A. This was in the early part of—I would say possibly two months after April 8th.

Q. Sometime in May or June, 1938?

A. Yes, that is right; possibly about that time.

Q. Your conversation was with Mr. McSwain, was it?

A. Yes, Mr. McSwain; he was the one that han-

(Testimony of Allan B. Ruddle.)

dled all the business end of this talk—these negotiations.

Q. I am referring to just the first conversations you had where Mr. McSwain, as you stated, was talking to you about Shell's attempts to make a single package article out of Core-Min-Oil.

A. Yes, he had told me——

Q. Where did that occur, before you tell us what he said?

A. I would say in Mr. McSwain's office in the Shell Building.

Q. Was anyone else present?

A. Now, there might have been someone else there, but I don't recall anybody else being there.

Q. Mr. Ruddle, I don't want to lead you; you correct me on this: It is true that you had innumerable conversations with Mr. McSwain; is that true?

A. Hundreds of them; I was there every day, almost.

Q. Over the period of the option?

A. The entire six months I was there several times a week; sometimes all day with him; sometimes we would go to Martinez; sometimes we would go to the Vulcan Foundry; and he even came to my home in the evening.

Q. And on these occasions there were sometimes others of these men you have named, present?

A. That is true.

Q. And sometimes they were not?

(Testimony of Allan B. Ruddie.)

A. Yes; a great deal of the time Ray Harsch was there. [69]

Q. Is it possible for you at this time to isolate each one of these conversations and state exactly who was present and whether it happened in the Vulcan Foundry, or Martinez, or Mr. McSwain's office in San Francisco?

A. No, I couldn't do that.

Q. You can't limit it to that area?

A. I do know that I talked to Mr. McSwain; who was with us I wouldn't be able to tell you.

Mr. Hackley: Does that help you any, Mr. Aurich?

Mr. Aurich: Yes. I am perfectly agreeable in this matter, Mr. Hackley; I know that both parties are laboring under the same difficulty. All I want is the approximate period of time during which these conversations are supposed to have occurred, according to the witness.

Mr. Hackley: I want to isolate these under the rules as closely as I can for you.

Q. Now go ahead with what you were telling us about your discussion—or if it was more than one discussion, your discussions—with Mr. McSwain on the question which you said was raised by him about putting Core-Min-Oil in a single container.

A. Well, he told us that if he could put the Core-Min-Oil in the one container by emulsifying both products, the solution and the asphalt emulsion,

(Testimony of Allan B. Ruddle.)

that he would be able to control the sale of asphalt, and that he could get a better price for it.

Q. Did he tell you about anything that was being done, or did you observe anything being done, by Shell, to attempt to accomplish that end?

A. Yes; they were trying to do that in Martinez at that time: I think Mr. Warren was the name of the man working for the Shell Oil Company that was working on that at that time.

Q. Were you ever advised whether or not Shell was able to make a single package item out of Core-Min-Oil?

A. At that time [70] they told us that they were unable to make it.

Q. "At that time"—that was when?

A. That was during this period of six months that you referred to.

Q. The option period of the contract?

A. That is right.

Q. When you took Core-Min-Oil to the Shell Oil Company in the first instance, did you represent the product to them to be a single package, or two package article? A. Two package.

Q. Did you discuss with them prior to making the contract anything about making a single package article? A. I did not.

Q. Did they ever bring up that question?

A. No, no, not at that time.

Q. Anyone in connection with Shell?

(Testimony of Allan B. Ruddle.)

A. Not at that time, no.

Q. When was the question first raised?

A. I tried to place it a minute ago, about probably two months after the contract was signed.

Q. That was the first time it was raised by anybody in connection with Shell?

A. That is right.

Q. Did you have any further discussions with Mr. McSwain during that period of the option with reference to what Shell would do with reference to selling Core-Min-Oil in the event they were unable to put it in the single package?

A. He always told us they would sell it in two packages.

Q. If they couldn't sell it in one?

A. Yes. He discussed the method of how he would sell it in two packages. He said he would probably have to license a foundry to use a patented solution, but he said the objection to that was that the foundry could buy the asphalt emulsion from other oil companies, and then he would have to put all the profit on it from the patented solution.

Q. When you refer to "the patented solution," what do you mean?

A. The combination of solution and the—the sodium silicate [71] solution.

Q. At the time you are now referring to, had any patents issued on Core-Min-Oil or any of its constituents?

(Testimony of Allan B. Ruddle.)

A. No, they had not; there were just applications filed.

Q. When you speak of the patented solution are you referring to the patented subject matter of your two patents, Plaintiff's Exhibits 1 and 2?

A. Yes, that is right.

Q. When you refer to the patented solution you mean if and when they were patented, is that correct?

A. Yes, that is right.

Q. Mr. Ruddle, outside of further tests of Core-Min-Oil that you have described, and attempts by Shell to work out a method of placing Core-Min-Oil in a single container, which I believe you described—correct me if I am wrong—as an emulsifying solution and Core-Min-Oil—is that correct?

A. That is right.

Q. Did you observe, or were you informed by Shell of any other activity that was being done during the option period, relating to Core-Min-Oil?

A. You mean other than trying to put it in one package?

Q. In making the tests, as you have described, of the product itself.

A. Yes; they were trying to get information for patent purposes, to patent the fact that CO₂ gas was the cause of the core softening, and also they were trying to get a range of the solution—that is, the amount of asphalt emulsion—the least amount of asphalt emulsion and the most of asphalt emul-

(Testimony of Allan B. Ruddie.)

sion that could be used in this core, as well as the measure of solution that was used.

Q. Who was doing that work, if you know?

A. Well, it was being done at the Martinez laboratory by Mr. Spotswood, I think.

Q. Did you at any time turn over to the Shell Oil Company copies of your applications for patent resulting in patents, Exhibits 1 [72] and 2, or give them access to your patent office files of those patents?

A. Yes; after the contract was signed we turned over the patent applications for them to prosecute.

Q. That was in line with your agreement, was it?

A. Yes, that was it.

Q. Those were the applications for patent resulting in patents, Exhibits 1 and 2, is that correct?

A. That is right.

Q. And did you turn over to them for prosecution the application which you referred to as an abandoned application this morning?

A. Yes, I did.

Q. During this period between April 8, 1938, and the end of the option period, October 8, 1938, did anything else come up on the question of patent protection relating to your product, or anything in connection with it?

A. Well, there was an application for patent that was applied for in the name of Spotswood and Ruddie. Is that the one you refer to?

Mr. Hackley: Q. That was the application in

(Testimony of Allan B. Ruddle.)

which you and Mr. Spotswood were joint inventors?

A. That is right.

Q. What, if you remember, was the general subject of that application?

A. Well, it was an application for protection on this CO₂ gas, and also the measurements of quantity used, as I recall.

Q. I show you a copy of patent entitled "Ruddle and Spotswood Application, Patent No. 2,214,349, issued September 10, 1940," and ask you if you can identify that in connection with your testimony?

A. Yes, that is the patent I had in mind.

Q. That is the patent that issued on the application you are referring to?

A. That is right. [73]

Q. Was the application for this patent prepared by your attorneys or Shell's attorneys?

A. By Shell Oil Company's attorney—Shell Development Company's attorney.

Q. Was the application for patent prosecuted to final issuance by the Shell Company's attorneys?

A. I understand that they returned it to us—returned it to me, and I, in turn, turned it over to Mr. Townsend and Hackley, and they completed it.

Q. You turned it over to my office and we completed the prosecution? A. That is right.

Q. And eventually on September 10, 1940, this patent issued that you have identified here?

A. That is right.

(Testimony of Allan B. Ruddle.)

Mr. Hackley: To illustrate the witness' testimony, I ask that a copy of this patent be received as Plaintiffs' Exhibit 7, the patent being number 2,214,349—as No. 8.

I note in making this offer, your Honor, that I overlooked offering as Paintiffs' Exhibit for Identification, the royalty memorandum of Mr. McSwain, the objection to the offer of which was sustained, but I merely offer it now for identification.

The Court: Let it be marked.

Mr. Hackley: And ask that it be marked Exhibit 7 for identification, and that the patent be marked Exhibit 8, so that our [74] continuity is preserved.

(The royalty memorandum referred to was marked "Plaintiffs' Exhibit No. 7 for Identification.")

(The Patent No. 2,214,349 was marked "Plaintiffs' Exhibit No. 8.")

Mr. Hackley: Q. Did the Defendant Shell Oil Company exercise the option contained in the contract, Exhibit 5?

A. They did.

Q. On or before October 8, 1938?

A. They did.

Q. On or before October 8?

A. No, it was—they asked for an extension—ten-day extension; and in fact, they asked for three ten-day extensions, which we gave them, and just prior to the last extension, before it ran out, they wrote

(Testimony of Allan B. Ruddie.)

us a letter saying that they were going to go ahead under the contract.

Q. Did you or your representatives receive a letter notifying you of the exercise of the option of the contract and election to operate under it?

Mr. Aurich: I will admit that the letter was written, and I will admit—although I have no knowledge of it—that it was received, and that the option was exercised and the contract was [75] taken up.

Q. You received this letter (showing)?

A. Yes, I received that letter.

Mr. Hackley: I ask that the letter identified by the witness, dated November 2, 1938, written by Bernard J. Gratama, be received as Plaintiffs' Exhibit 9.

(The letter referred to was marked "Plaintiffs' Exhibit No. 9.")

Mr. Hackley: Q. After the option on the contract was exercised and the contract of April 8, 1938, went into effect, what next transpired in reference to performance of that contract, if anything?

A. Well, I called upon Mr. McSwain to ask him when he was going to start—

Q. When did you call on him?

A. Immediately after it was exercised.

Q. Right after November 2, 1938?

A. Probably the next day.

Q. Right after November 2, 1938?

(Testimony of Allan B. Ruddle.)

A. Yes, that is right; and asked Mr. McSwain when the Shell Oil Company——

Q. Just a minute. This was at his office, was it?

A. At his office, yes.

Q. Was anyone else present?

A. I don't recall that anyone else was there, but I do know that I went to Mr. McSwain the next day, possibly, after I received that—possibly that day—to find out when they would start to sell this product.

Q. Did Mr. McSwain make any statements to you?

A. Yes; he said they had done a lot of work getting ready to sell it, and they would probably put it on the market within the next week, or next two weeks, or next ten days. Each time I went there—and I went there every day or two after that to find out when they would start to market this——

Q. How long did that continue, that you went to Mr. McSwain's [76] office?

A. Well, I went to Mr. McSwain's office several times a week, and he was—he would always tell me that they were getting along fine on emulsifying that product; they would soon have it in one package. They were going to start to sell it; they were going to have their headquarters in St. Louis, Missouri, and he hoped to head it, and it would certainly be within the next ten days or the next week, whatever—it was always some near future that we were

(Testimony of Allan B. Ruddle.)

going to start selling it—they were going to start selling it, the Shell Company. That went on until—I don't remember the date of it, but I went there one day and he said to me, "It doesn't look very good for Core-Min-Oil," he said,——

Q. When was this, Mr. Ruddle?

A. Well, this was just prior to a letter that we received from Mr. McLaren. He said, "It doesn't look"—I mean Mr. McSwain said it this way:——

Q. Can you give me approximately the month and year?

A. If you will let me refer to that letter of Mr. McLaren's there I could.

Q. It was just before the letter that you are referring to?

A. Yes; because he told me that we were going to get a letter from McLaren.

Q. I show you a letter dated July 26, 1939, signed "Shell Oil, by L. G. McLaren." Is that the letter you refer to?

A. This is the letter I refer to.

Q. Just prior to this letter you had a conversation with Mr. McSwain?

A. Yes; it might have been a week or ten days prior to that letter. He told me it didn't look very well for Core-Min-Oil; that they had been able to do the same thing with sodium silicate, and that they had—anyway, had perfected another product out of albino asphalt and something they had made

(Testimony of Allan B. Ruddie.)

out of linseed oil—whether it was oil they put in, linseed, I [77] don't know; but he said that they would use some kind of a solution that contained linseed oil with this product albino asphalt, and they had been able to accomplish—and that had all the qualities of linseed oil, and it had the drying time, the baking time of the product that we had here, and for that reason they were going to return our product.

Q. What did you say to Mr. McSwain at that time?

A. Well, I objected to it. And he said that, well, "We would have to sell this product of ours and let you share in it, but we cannot; we are advised by our patent department that we cannot get a patent on it, and that if we sold it, all we would be doing would be to open up the market for all the emulsifying asphalt men in the Middle West." He said, "They would be the ones that would reap the market." And he said to me, "I want to know what you people would want to do about this." So I told him that I would talk to Mr. Peck, and Lydell Peck, and I would give him an answer as to what we would expect them to do; that I certainly felt that they should market our product, and he had always promised that they would. And then I went to Mr. Peck's office and talked to Lydell and to his father, Mr. James F. Peck, and that evening I called Mr. McSwain at his home and told him that we had—we were so shocked over being told that

(Testimony of Allan B. Ruddie.)

after all this time, that we were to receive nothing out of this sale of Core-Min-Oil, and asked to take ours back while they took the market, I said we were going to refuse to do it. And I think we went to your office maybe the next day, and asked you to prepare a letter in answer to a letter that we received. When we received Mr. McLaren's letter—I am a little ahead of my story—we asked you to prepare an answer to Mr. McLaren's letter when we had received notice from him that they were going to cancel our contract. [78]

Q. Just a moment. At that point, Mr. Ruddie, are you again referring to the letter of July 26, 1939, signed by Mr. McLaren?

A. Yes, that is the letter I referred to.

Q. That letter was received at or about the date that appears on it?

A. Yes, that is the letter I referred to, I am sure.

Mr. Hackley: I offer as Plaintiffs' Exhibit 10 the letter dated July 26, 1939, signed "Shell Oil Company, Incorporated, by L. G. McLaren, Vice-President."

(The letter referred to was marked "Plaintiffs' Exhibit No. 10.")

Mr. Hackley: Q. Do I understand, then, that a reply to the letter, Exhibit 10, was prepared by your attorneys at your request?

A. That is right.

(Testimony of Allan B. Ruddle.)

Q. And did you reply, then, to Mr. McLaren's letter, Exhibit 10? A. Yes, we did.

Mr. Hackley: I show you the original of the letter which you [79] have identified and ask you if you can identify the original, particularly the signatures on it?

A. Yes, that is my signature, and the signature of Lydell Peck.

Q. That letter was sent by you to the Shell Oil Company? A. That is right.

Q. Prior to August 1, 1939?

A. Yes. It is in answer to that one of July 26.

Mr. Hackley: I offer as Plaintiffs' Exhibit 11 the letter identified by the witness, addressed by the witness and Lydell Peck to the Shell Oil Company, attention L. G. McLaren, noted as being in reply to letter Exhibit 10.

(The letter referred to was marked "Plaintiffs' Exhibit No. 11.")

Mr. Hackley: Q. Did you receive any response from the Shell Oil Company, Exhibit 11, or a supplement to their letter, Exhibit 10? And in that connection I show you a letter from the Shell Oil signed by Mr. McLaren, addressed to yourself, dated August 18, 1939?

A. Yes, we received this letter. This came attached to some reports that the Shell Oil Company had made on the work they had done on Core-Min-Oil and other oils.

Mr. Hackley: I ask that the letter identified by

(Testimony of Allan B. Ruddie.)

the witness dated August 18, 1939, signed "L. G. McLaren, for Shell Oil Company," be received as Plaintiffs' Exhibit 12.

(The letter referred to was marked "Plaintiffs' Exhibit No. 12.")

Mr. Hackley: I might note for the record in that connection that Plaintiffs' Exhibit 9 is Exhibit C to the complaint in this action; Plaintiffs' Exhibit 10 is Exhibit D to the complaint; [80] Plaintiffs' Exhibit 11 is Exhibit E to the complaint; and Plaintiffs' Exhibit 12 is Exhibit F to the complaint in this cause.

Q. You referred to the fact that there were enclosed——

Mr. Aurich: I haven't carefully compared Plaintiffs' Exhibit 12 with the alleged corresponding exhibit attached to the bill of complaint, but I do know——

The Court: Subject to any corrections you wish to make.

Mr. Aurich: I don't think it is quite an accurate copy.

Mr. Hackley: If there were typographical errors in the copy annexed to the complaint, the original which we are now offering——

The Court: Subject to correction by counsel.

Mr. Hackley: We are offering here the original, your Honor.

Q. Mr. Ruddie, you mentioned the fact that there were annexed to the letter, Exhibit 12, the

(Testimony of Allan B. Ruddie.)

series of reports which are referred to in Exhibit 12.

A. That is right.

Q. I ask you if, among those reports, were Plaintiffs' Exhibits 3 and 4 which you have previously identified?

A. Yes; those are the only ones that we had received up until the time of receiving this.

Q. So you received duplicates as part of Exhibit 12 of Plaintiffs' Exhibits 3 and 4?

A. Yes, that is right.

Mr. Aurich: Mr. Hackley, if you want to offer the reports that are attached to the bill of complaint, I will waive authentication and verification by this witness.

Mr. Hackley: You will stipulate these are the reports referred to in the letter?

Mr. Aurich: If you are offering the signed reports, yes, I will.

Mr. Hackley: Yes, I am offering signed copies only. They, however, appear to be mimeographed signatures of the original [81] signatures.

Mr. Aurich: They are copies of those attached to your complaint.

Mr. Hackley: I therefore offer as Plaintiffs' Exhibit 13, Shell Oil Company's Special Report No. R168, dated June 14, 1938, which is Exhibit F-3 to the complaint. I may state for the record that Exhibits F-1 and F-2 to the complaint are Plaintiffs' Exhibits 3 and 4 respectively, offered previously in this proceeding.

(Testimony of Allan B. Ruddle.)

(The report referred to was marked "Plaintiffs' Exhibit No. 13.")

Mr. Hackley: I offer as Plaintiffs' Exhibit 14, Shell Oil Company Martinez Refinery Report R175, dated July 26, 1938, this being Exhibit F-4 to the complaint.

(The report referred to was marked "Plaintiffs' Exhibit No. 14.")

Mr. Hackley: I offer as Plaintiffs' Exhibit 15 Shell Oil Company Martinez Refinery Report No. TAC226, dated June 30, 1938, this being Exhibit F-5 to the complaint.

(The report referred to was marked "Plaintiffs' Exhibit No. 15.")

Mr. Hackley: I offer as Plaintiffs' Exhibit 16 Shell Oil Company Martinez Refinery Report TAC227, dated June 30, 1938, Exhibit F-6 to the complaint in this action.

(The report referred to was marked "Plaintiffs' Exhibit No. 16.")

Mr. Hackley: I offer as Plaintiffs' Exhibit 17 Shell Oil Company Martinez Refinery Report TAC228, dated July 1, 1938, Exhibit F-7 to the complaint.

(The report referred to was marked "Plaintiffs' Exhibit No. 17.") [82]

Mr. Hackley: I offer as Plaintiffs' Exhibit 18, Shell Oil Company Martinez Refinery Report

(Testimony of Allan B. Ruddie.)

TAC290, dated August 29, 1938, being Exhibit F-8 to the complaint.

(The report referred to was marked "Plaintiffs' Exhibit No. 18.")

Mr. Hackley: I offer as Plaintiffs' Exhibit No. 19, Shell Oil Company Martinez Refinery Report TAC367, dated October 27, 1938, Exhibit F-9 to the complaint.

(The report referred to was marked Plaintiffs' Exhibit No. 19.)

Mr. Hackley: I offer as Plaintiffs' Exhibit 20, Shell Oil Company Martinez Refinery Report TAC No. 472, dated December 15, 1938, Exhibit F-10 to the complaint.

(The report referred to was marked "Plaintiffs' Exhibit No. 20.")

Mr. Hackley: I offer as Plaintiffs' Exhibit 21, Shell Oil Company, Incorporated, Martinez Refinery Report TAC 561, dated March 23, 1939, Exhibit F-11 to the complaint.

(The report referred to was marked "Plaintiffs' Exhibit No. 21.")

Mr. Hackley: I offer as Plaintiffs' Exhibit 22, Shell Oil Company Martinez Refinery Report TAC 462, dated November 30, 1938, being Exhibit F-12 to the complaint in this action.

(The report referred to was marked "Plaintiffs' Exhibit No. 22.") [83]

(Testimony of Allan B. Ruddle.)

Mr. Hackley: And finally, I offer, as the last of this group of exhibits referred to in Exhibit 12, as Plaintiffs' Exhibit 23 a report dated August 7, 1939, signed W. H. Spiri and E. H. Spotswood entitled "Preparation and Testing Mixed Core Oils containing Bituminous Emulsions and Sodium Silicate;" this is Exhibit F-13 to the complaint.

(The report referred to was marked Plaintiffs' Exhibit No. 23 in evidence.)

Mr. Hackley: You spoke of the fact, Mr. Ruddle, that you received the first of this group of reports, Plaintiffs' Exhibits 3 and 4, prior to the receipt of the notice of July 26, 1939.

A. That is right.

Q. Did you receive copies of any of the reports Exhibits 13 to 23 inclusive prior to the receipt of Exhibit 12, the letter of transmittal of those reports?

A. No, we had not.

Q. Had you ever seen those reports?

A. No, I never had.

Q. Had you *been* any access to them at all?

A. No, we had not.

Q. Had any reference ever been made to them in any conversation with you?

A. No reference to the report; I was told orally part of what was going on.

Q. You did receive orally some of the information contained in some of the reports, if I understand you?

A. Oh, yes, Mr. McSwain would tell me gen-

(Testimony of Allan B. Ruddie.)

erally what they were trying to do, but not in detail, because I don't think he knew.

Q. Did you reply to the letter Exhibit 12 in which these reports Exhibits 3, 4 and 13 to 23 inclusive were received?

A. I think we asked your office to reply.

Q. Did you prepare a reply yourself?

A. I did not. This is a copy of an answer——

Q. Who signed that report?

A. Who signed this letter? [84]

Q. Yes.

A. Lydell Peck and myself, but you prepared the letter in your office.

Q. Did you send the original of that letter to the Shell Oil Company? A. Yes, we did.

Mr. Hackley: Mr. Aurich, do you have any objection to my offering a copy?

Mr. Aurich: Subject to inspection and correction I have no objection to your substituting a copy.

Mr. Hackley: Q. That letter you have identified is a letter dated September 6, 1939 signed by yourself and Mr. Peck and addressed to the Shell Oil Company, Incorporated; is that correct?

A. That is correct.

Mr. Hackley: I offer as Plaintiffs' Exhibit 24 the letter last identified by the witness dated September 6, 1939 sent by the witness and Lydell Peck, the plaintiffs in this case, to the Shell Oil Company, Incorporated.

Mr. Aurich: Object to the introduction of the

(Testimony of Allan B. Ruddle.)

document, if your Honor please, on the ground of its lack of materiality and on the self-serving nature of the declarations. This is a letter that was written after the controversy which is the subject of this suit had crystallized, and it is a letter from Mr. Hackley in which he does no more than write a brief in support of his clients as to all the reasons why the Shell Oil Company should withdraw their notice of cancellation and give them what they want, and it has absolutely no materiality to any of the issues in this case.

Mr. Hackley: If your Honor please, this letter is a letter prepared admittedly by my office, I think by me, for my clients, the plaintiffs in this action as a response to Mr. Aurich's client, the Shell Oil Company and the other defendant [85] here, in their attempts to cancel this contract.

The Court: I will allow it. Proceed.

(The letter referred to was marked Plaintiffs' Exhibit No. 24 in evidence.)

Mr. Hackley: Q. Did you receive an acknowledgment of receipt and reply to the letter Exhibit 24 from Mr. McLaren on behalf of the Shell Oil? I show you a letter dated September 29, 1939 on the Shell Company letterhead.

A. Yes, we did.

Q. The letter which you have here, is that the letter? A. Yes, it is.

Mr. Hackley: I offer the letter identified by the witness dated September 14, 1939, addressed to the

(Testimony of Allan B. Ruddie.)

witness and Mr. Peck, signed L. G. McLaren for the Shell Oil Company, as Plaintiffs' Exhibit No. 25.

(The letter referred to was marked Plaintiffs' Exhibit No. 25 in evidence.)

Mr. Hackley: Q. And finally, did you reply to the letter Exhibit 25 which you have just identified? I show you a copy of a letter dated September 20, 1939.

A. Yes, this is an answer to it.

Mr. Hackley: Mr. Aurich, I have here a copy, again subject to correction.

Mr. Aurich: No objection to a copy.

Mr. Hackley: I offer as Plaintiffs' Exhibit 26 the letter of September 20, 1939 sent by the witness and Mr. Peck to the Shell Oil Company, Incorporated, attention L. G. McLaren.

(The letter referred to was marked Plaintiffs' Exhibit No. 26 in evidence.)

Mr. Hackley: Q. Other than the reports Exhibits 3 and 4 and 13 to 23 inclusive which you have just identified, did you [86] ever receive any written reports prior to the receipt of the letter of July 26, 1939 from Shell Oil Company as to their work under the contract? A. No, we did not.

Q. And the only reports you received prior to the date of this notice of July 26, 1939 were the reports Exhibits 3 and 4; is that correct?

A. That is right.

Q. Did you accept cancellation of the contract

(Testimony of Allan B. Ruddie.)

Exhibit 5 from the Shell Oil Company at the time it was given to you or at any other time?

A. We certainly did not.

Q. Did you ever meet Mr. McSwain after you received the notice Exhibit 10 dated July 26, 1939?

A. I think I met him—I went to lunch with him just prior to that letter we received from Mr. McLaren, because he asked if we had received that letter, if I remember rightly, at this lunch.

Q. Did you make any protest at that time against cancellation of the contract or an attempt to do that by Shell? A. Yes, I did.

Mr. Aurich: I suggest that the witness be asked the substance of the conversation and not led.

Mr. Hackley: I first wanted to find out if there was a conversation, Mr. Aurich.

Q. This was at lunch with Mr. McSwain, was it?

A. That is right.

Q. Where did you have this lunch?

A. Down at the California Market.

Q. San Francisco?

A. That is on Pine Street, I think right off of Montgomery.

Q. In San Francisco?

A. In San Francisco.

Q. Was anybody else present?

A. No, just McSwain and myself.

Q. Give us the substance of that conversation.

A. Well, I [87] wanted to talk to him about the fact that the Shell Oil Company had decided to—without warning, had decided to give this contract

(Testimony of Allan B. Ruddle.)

up and give it back to us. And I had known Floyd McSwain practically all my life, I went to school with him, and I wanted to talk to him about it, tell him what I thought about it, which I proceeded to do. I told him that if the Shell Oil Company had developed something out of my discoveries and for themselves out of it and we did not share in it, I would always feel that we would be robbed—that I would be robbed.

Q. Did you say anything to Mr. McSwain about the term of the contract or anything of that sort?

A. I told him—yes, we even discussed the term of the contract, I think. He said that the contract did not call for anything that the Shell developed.

Q. I am referring now to the term, the time of the contract, the length of time it had to run. Was it discussed at all?

A. I don't doubt but what everything was discussed about it. In fact, I told him how I felt about being treated as they were treating us. But as to whether I discussed the term of the contract, the length of the contract, I don't know. He said that they had decided not to do anything with it; they had spent a lot of money on it. They said they were willing to give back all of their tests, and a copy of all of their tests and so on. I said, "That is due us anyway; the contract calls for that. We have never received anything but the two early tests." He said, "You are going to get them. They are all going to be made up and sent to you."

Q. You say tests; you mean reports?

(Testimony of Allan B. Ruddle.)

A. Those reports—yes, those reports of tests that were made.

Q. Did you discuss anything about this new product Mr. McSwain [88] had mentioned?

A. Well, he had told me just prior to that that the Shell had this new product they couldn't get a patent on.

Q. Did he state what they were going to do with the product? Were they going to give it to you under the contract, or anything?

A. No, no, he said we weren't entitled to that. He didn't say anything about giving it to us; he just said they weren't going to sell it because they couldn't get patent protection on it, and they would just open up the market for others.

Q. Did he state anything about the utility of that product?

A. Yes; he said that product had all the good qualities of linseed oil, which is considered to be the leading core oil in the market, and it also had the fast drying time—that is, the fast baking time that our product had that we took to them.

Q. Core-Min-Oil? A. Core-Min-Oil.

Q. Did I understand you to testify a few minutes ago that this new product was an asphalt and linseed combination of some kind?

A. Yes, they called it—he called it an albino asphalt and some product of linseed; I don't know whether it was straight linseed or not, but I understood him to say that it was made out of linseed.

Q. Did you make any demands on Mr. McSwain

(Testimony of Allan B. Ruddle.)

with reference to the performance of the contract by Shell at this time? A. Yes, we did.

Q. I mean, you personally at this conversation?

A. Yes, I did in this conversation.

Q. What did you say to him?

A. I told him that we expected the Shell to live up to this contract; we were going to insist that they do it.

The Court: We will take a recess for a few minutes.

(Recess.) [89]

Q. Mr. Ruddle, after the exercise of the option by Shell on November 2, 1938, and prior to the receipt of the notice Plaintiffs' Exhibit 10, dated July 26, 1939, did Mr. McSwain or anyone else in connection with the Shell Oil Company give you any memoranda relating to core oils, core oil consumption, or the like? A. He did.

Q. Is this by any chance such a memorandum? Will you examine it, please (handing paper to witness). A. Yes, it is.

Q. Do you recall the particular conference when Mr. McSwain gave you this document?

A. Yes, we were talking about the price——

Q. Before you go into that, do you remember the time and place and if anyone else was present first?

A. Yes, it was with Mr. McSwain. I went over to his office one day and he said, "Here's something that will throw some light on the size of the market,

(Testimony of Allan B. Ruddie.)

something about core oil that I have in my file. Take it and read it."

So we had a discussion about the size of the market and also the price. He said that he had had a report.

Q. Was anyone else present?

A. There might have been. Mr. Harsch might have been there. Mr. Peck might have been there.

Q. Mr. Lydell Peck? A. Yes.

Q. This was at Mr. McSwain's office?

A. At Mr. McSwain's office.

Q. About when was the date, approximately?

A. Well, it was about the time the product was sent down to the Axelson Foundry, probably just prior to that, because we were talking about the market and McSwain said that he was going to try to get a price set on asphalt emulsion, and he also mentioned the size of the market being sixty million gallons a year, this market for Core-Min-Oil.

[90]

Mr. Aurich: This was in 1939?

The Witness: In 1939, yes.

Mr. Hackley: Q. You said about the time of the shipment of some Core-Min-Oil, was it, to Axelson?

A. Yes, I remember we were discussing what we should expect to get out of the market.

Mr. Hackley: I will offer as Plaintiffs' Exhibit 27 memorandum identified by the witness entitled "Vulcan Foundry Company, Oakland, California," bearing the stenographic signatures JH:PEA, and

(Testimony of Allan B. Ruddie.)

dated September 17, 1936, and an additional date on the rear 1/24/38.

Mr. Aurich: I object to the introduction in evidence of this letter, your Honor, on the ground of utter lack of materiality. The letter is dated September 17, 1936, which is a period of time even before this witness had ever been in a foundry, and as far as being any proof of a market, it certainly cannot do that, because the third paragraph of the letter reads:

“Mr. Martin guessed that the consumption of core oils in California was 4,000 to 5,000 gallons per day.”

Obviously, it cannot have any bearing on anything that occurred in 1938 and 1939, which is the date of the contract here in question.

Mr. Hackley: Your Honor, I am offering it as a part of the transaction between the plaintiffs and the defendants. This is something which the Shell Oil Company, through its Mr. McSwain, gave to this witness as a representation, apparently, by the Shell Oil Company of market potentialities for Core-Min-Oil, the product which they had undertaken to sell, and naturally, the document itself is only valuable to that extent, and it is offered to no greater extent.

[91]

The Court: Very well.

(The memorandum referred to was marked Plaintiffs' Exhibit No. 27 in evidence.)

The Court: I am limiting that, this letter dated

(Testimony of Allan B. Ruddle.)

September 1936. It has no relevancy to the issues involved. It has only relation to the conversations had at that time.

Mr. Hackley: That is correct, your Honor. The offer is made with that condition on it.

Q. Mr. Ruddle, will you continue with the description of your conversation with Mr. McSwain just prior to the shipments of some Core-Min-Oil to the Axelson Foundry, particularly with reference to that part where we were discussing the statements made by Mr. McSwain to you about market possibilities for Core-Min-Oil?

A. We were trying to get the Shell Oil Company to do something with this product, and so he said while they were emulsifying——

Q. What do you mean by “doing something with” it?

A. I mean to sell this Core-Min-Oil. He said he thought they had the emulsifying angle solved. They had it in one package. And he was telling me the wonderful results they were going to get from the sale of Core-Min-Oil.

Q. Tell us just what Mr. McSwain said to you.

A. He said that he was trying to establish a price on it, and he said he was going to ask the Axelson people fifty cents a gallon for it, and he said that would be a nice piece of business, because the market, he said, on this product would be something like sixty million gallons a year, if we could sell—replace the linseed oil market.

He said, “Probably the first year we won’t get

(Testimony of Allan B. Ruddle.)

over ten per cent of the market, but it will increase each year. We [92] eventually should get fifty per cent of the market.”

Q. Now, you referred to the shipment of some Core-Min-Oil to the Axelson Foundry. Where is the Axelson Foundry, do you know?

A. The Axelson Foundry, Mr. McSwain told me, was in Los Angeles. They shipped a shipment or a drum, I think he told me, of asphalt emulsion where they had the emulsified product in one package down to the Axelson Foundry. He said when it arrived there he went in and talked to Mr. Axelson, and Mr. Axelson asked him the price of this product, and he said, “Well, fifty cents a gallon.” And McSwain was terribly elated, because Mr. Axelson did not object to the price.

Q. Did Mr. McSwain tell you what type of Core-Min-Oil was sent there? Did he describe that to you?

A. Yes; he said the Core-Min-Oil was sent in one package. That was the description of it, it was emulsified in one package. But he said it arrived there gummy. The emulsion had broken and they were unable to use it.

Q. Mr. Ruddle, you have testified that you gave to the Shell Oil Company the formula for Core-Min-Oil and for the solution that went into Core-Min-Oil. Did you give them anything more [93] than that in the way of information which you had gathered relating to cores?

A. I gave them everything I knew in connec-

(Testimony of Allan B. Ruddie.)

tion with it, all the discoveries that we had made in connection with the use of asphalt and the solution to the Shell Oil Company.

Q. For the purpose of making cores?

A. That is right, for use in foundry.

Q. Did you ever turn over to the Shell Oil Company any information relating to any other foundry product than core oil, any other product which you tried to work out and develop? A. No.

Q. Did you ever turn anything over to them relating to core washes?

A. Oh, yes, I did; I made a core wash out of this solution and carbon—carbon black, they call it.

Q. What do you mean by “this solution”?

A. The solution described as aluminum sulphate, sodium fluo-silicate, and sodium silicate.

Q. The same solution you described as part of Core-Min-Oil, is that right?

A. And carbon black—that is a product of the Shell Oil Company.

Q. One of the Shell——

A. One of the Shell Oil Company's products.

Q. You had prepared a core wash with this Core-Min solution and carbon black as its constituents?

A. Yes.

Q. You said you turned that over to Shell. Just exactly what did you do?

A. I turned that over to Mr. Spotswood, I think, or Mr. Spiri of Vulcan Foundry, and Mr. Spiri reported to me that it worked perfectly.

(Testimony of Allan B. Ruddie.)

Q. When did you deliver to the Shell Oil Company or anybody in connection with Shell any information relating to the formula of that core wash?

A. I gave that to the Shell Company when [94] we signed the contract.

Q. That is, at the same time you gave them the formula for your solution?

A. That is right. I at that time was using a graphite that I had made a core wash with instead of carbon black.

Q. By the way, what is core wash? Will you describe it, please?

A. Yes. After the cores are baked, then they are painted or sprayed with this wash. This wash is supposed to chill the iron so that it won't burn into the cores, and in that way you get a smoother casting.

Q. Did the Shell Oil Company express any interest in your core wash?

A. Well, I talked to Mr. McSwain about it a number of times.

Q. When did you first talk to Mr. McSwain about it?

A. Well, I always talked to Mr. McSwain about it from the time he sent the contract about the putting that on the market, and he always put me off by saying, "We are putting in all the time we can on the Core-Min-Oil. We will get that on the market first."

Q. Did the subject of core wash come up prior to the making of the contract? A. Yes, it did.

(Testimony of Allan B. Ruddle.)

Q. Was there any discussion as to whether or not Shell wanted a license to make your core wash?

A. Well, after we had agreed on the terms of the contract——

Mr. Aurich: Just a minute. I object to any conversations that concern the negotiation of the contract on the ground that they are either embodied in the contract, and therefore they are there, or are not there, and therefore not material.

Mr. Hackley: I agree that the contract speaks for itself, your Honor, of course, as to its contents. This, however, is [95] relating to what products were included within the terms of the contract, compositions for foundry use. Your Honor recalls at the time of the opening statement we brought out the point that Shell had undertaken to manufacture and sell Core-Min-Oil and other products for foundry use or other compositions for foundry use.

The Court: Is core wash one of the items?

Mr. Hackley: I understand it is.

The Court: You understand it is?

Mr. Hackley: My preparation of the case indicates that, but I do not want to be put in the position of testifying in advance of the witness. That is the answer I was trying to get from the witness, however.

The Court: At this time I will allow it.

Mr. Hackley: Do you recall the question, Mr. Ruddle?

(Testimony of Allan B. Ruddie.)

The Witness: Give it to me again, please.

(Question and answer read.)

The Witness (continuing): —I remarked that I also had been able to make a core wash, and so Mr. Gratama of the Shell Oil Company——

Mr. Hackley: Q. Shell Development Company, do you mean?

A. —Shell Development Company spoke up and said, “Well, we want to include that in the contract.”

Q. Did you state that that would be considered included under the contract? A. Yes.

Mr. Aurich: I did not hear you, Mr. Hackley. I didn't hear the question.

Mr. Hackley: I said, Did you state that that would be included under the contract? And he answered “Yes.”

Q. Was the core wash which you developed ever carried forward [96] in the laboratory development or commercialization by Shell that you know of?

A. Not to my knowledge.

Q. Did you ever discuss with Mr. McSwain the fact that Shell had undertaken to market that product? A. Many times, yes.

Q. What were his answers? Were they always the same, they were busy with Core-Min-Oil and didn't have time on that?

A. Yes, or that they had started on that and would get at that right away.

Q. Aside from the statement of Mr. Spiri that

(Testimony of Allan B. Ruddle.)

they would try your core wash consisting of your solution and carbon black, did you have any other discussions with anyone in the Shell organization relating to the merits of your core wash?

A. I talked with Mr. McSwain about it a number of times, but there was nothing done about it.

Q. Mr. Ruddle, was there anything further done than just these conversations on Mr. McSwain's part and the single report of Mr. Spiri relating to the core wash?

A. No, there was none.

Q. But you did, as I understand your testimony, constantly press Shell to get busy on that and market that, is that right?

Q. Did you at any time prior to the issuance of the patents Exhibits 1 and 2 disclose to anyone other than the Shell Oil Company, Shell Development Company, and the representatives [97] of those two companies the formula for Core-Min-Oil including the solution in the Core-Min-Oil?

A. I never have, no.

Q. Did you ever at any time prior to the issuance of the patents Exhibits 1 and 2 disclose to anybody other than Shell Oil Company and Shell Development Company and their representatives the formula for your core wash as you have described it?

A. I have not.

Q. Has the Shell Oil Company ever paid you any royalties at all under the contract Exhibit 5 on the subject Core-Min-Oil?

A. They have not.

(Testimony of Allan B. Ruddie.)

Q. Have they ever paid you any royalties under the contract Exhibit 5 for the core wash you have described? A. They have not.

Q. Have they ever paid you any monies at all under any guise under the terms of the contract Exhibit 5 or otherwise?

A. No, they have not.

Q. Has the Shell Oil Company ever made any accounting to you for operations under the contract, either with reference to Core-Min-Oil or core wash? A. They have not.

Q. Have you any information from the Shell Oil Company or any of its representatives to the effect that Shell Oil Company or any of its affiliates, subsidiaries or parent companies has ever sold, offered for sale, or attempted to sell so much as a single gallon of Core-Min-Oil or its constituents for use in a foundry? A. No, I have not.

Q. Have you any evidence whatsoever that the Shell Oil Company has ever sold, offered for sale, or attempted to sell, either by itself or through any of its affiliates, subsidiaries, or parent companies, so much as a single gallon of your core wash or its constituent products for use in foundry practice? [98] A. No.

Q. Do you know whether or not Shell has ever sold or offered for sale under the terms of the contract Exhibit 5 any foundry product at all?

A. No, I do not know; not to my knowledge.

Q. You have no evidence of such activity?

A. No, I have not.

(Testimony of Allan B. Ruddie.)

Q. Has Mr. McSwain ever told you whether or not his company has even attempted to market either core wash or Core-Min-Oil or any other product for foundry use under the contract?

A. No, he has not.

Q. Has anyone else in connection with Shell?

A. No.

Q. Have either you or Mr. Lydell Peck, your co-plaintiff in this action and joint licensor of the contract Exhibit 5, or either of you, in any way to your knowledge breached the contract Exhibit 5 or failed to perform fully and faithfully any of its terms provided for you to be maintained and performed?

Mr. Aurich: I object to that as calling for an opinion and conclusion of law.

The Court: Objection sustained.

Mr. Hackley: If your Honor please, I do not mean to argue——

The Court: The Court has ruled. It is a fine speech, but it is not cross examination. Read that question, Mr. Reporter.

(Question read.)

The Court: If that is not a conclusion of law, I am in error. In any event, the Court has ruled. The objection will be sustained. Proceed.

Mr. Hackley: Q. Has the Shell Oil Company or any representative of it—by that I refer to the defendant in this action—ever charged you or Mr. Peck, Lydell Peck, either jointly or severally, with

(Testimony of Allan B. Ruddie.)

breach or failure of performance by you or either of you of any part of the contract Exhibit [99] 5?

A. Not to my knowledge.

Q. Do you consider that the defendant Shell Oil Company, Incorporated, under the terms of the contract Exhibit 5 has diligently attempted to sell Core-Min-Oil and other compositions for foundry use as provided in the contract?

The Court: All this testimony is calling for the conclusion of the witness.

Mr. Hackley: Your Honor, I think it is a proper type of examination. I do not intend to impose myself upon your Honor in that connection.

The Court: I think that it is a habit. Read the question, Mr. Reporter. There is no question in the Court's mind at all.

(Question read.)

The Court: What he considers.

Mr. Hackley: After all, this contract is one which this witness——

The Court: It is calling for the conclusion of this witness clearly.

Mr. Hackley: Yes, but the witness,—after all, the word “diligently”——

The Court: The factual situation governs; develop the facts.

Mr. Hackley: I will withdraw the question. I will withdraw the question. Or if there was a ruling, of course, I will stand on the ruling.

The Court: The objection is sustained.

(Testimony of Allan B. Ruddle.)

Mr. Hackley: I will stand on the ruling.

Q. Have you any evidence or information that the defendant Shell Oil Company has attempted to sell Core-Min-Oil or any other composition for foundry use under the contract Exhibit 5? [100]

Mr. Aurich: Objected to as asked and answered at least three times.

Mr. Hackley: No, that question is asking him if he has any information at all of the performance of the contract.

The Court: You may answer.

A. No, I have not.

Mr. Hackley: Q. Have you any evidence that the Shell Oil Company has attempted to interest its subsidiaries, parent companies or affiliates in the United States in the sale of Core-Min-Oil and other products for foundry use?

A. No, I have not.

Q. Mr. Ruddle, in your complaint you have pleaded that you and your co-plaintiff have been damaged in an amount exceeding \$100,000 by the failure, neglect and refusal of the defendants to perform the obligations of the contract Exhibit 5. How did you arrive at that figure, and on what do you base your calculation of that damage?

A. In my discussion with Mr. McSwain, Mr. McSwain repeatedly told me of a market for Core-Min-Oil that would be at least \$60,000 a year—60,000 gallons a year.

Q. Sixty what?

A. Sixty million gallons a year, and his opinion

(Testimony of Allan B. Ruddie.)

was that we should get ten per cent of that market, and I figured that at the time the complaint was filed, that that would be a fair estimate in payment for neglect to sell.

Q. Ten per cent of the market at what time, Mr. Ruddie?

A. Well, that was an arbitrary figure. We figured ten per cent of a market where we would receive, if they got ten per cent of it, that would be 600,000 gallons and——

Q. Ten per cent of sixty million is what? I think you are trying to make these multiplications in your head there. Do you want to take a pencil and make your calculations? [101]

A. Yes, I think if I had a piece of paper I could do better.

Q. I just want to get your foundation there for a moment. You said that Mr. McSwain told you that there was a market for sixty millions of gallons for Core-Min-Oil in the United States annually?

A. Yes.

Q. And he said to you that you could expect—Shell Oil Company could expect to get ten per cent of the market——

Q. Before you do any calculating, Mr. Ruddie, I want to know exactly the foundation here. How much did Mr. McSwain say was the market for core oils in the United States?

A. Sixty million gallons for core oil.

Q. And what was this figure of ten per cent you referred to?

(Testimony of Allan B. Ruddle.)

A. He said we should get ten per cent of that market the first year.

Q. And after that did he make any statement?

A. He said it should increase, and he figured we would eventually get fifty per cent of the market.

Q. For how many years, or did he say?

A. He said it may take as many as two or three years before they would get up that high.

Q. About when did Mr. McSwain make these statements to you, or did he make them more often than once?

A. He made them many times. We were always talking about it.

Q. Was one of those occasions just before the shipment to Axelson?

A. That is one, yes; I remember the date of that.

Q. How much gallonage did you figure there? You were going to [102] make the calculation.

A. Well, I figure if they got 10 per cent, they would get 600,000 the first year.

Q. Are you taking 10 per cent of 6,000,000?

A. Yes.

Q. 60,000,000 or 6,000,000?

A. 600,000,000, which would be 10 per cent.

Q. I think you are a little tired here, Mr. Ruddle.

Mr. Aurich: If you want a mere calculation, 10 per cent of 60,000,000 is 6,000,000. You do not have to argue about that point.

Mr. Hackley: Yes; I think the witness is a little tired.

(Testimony of Allan B. Ruddie.)

Q. When it comes to these calculations it is difficult.

A. That is right.

Q. The figure is 6,000,000, is it, Mr. Ruddie?

A. That is right.

Q. And that is the figure you took as the amount which Shell should have sold in the first year, as I understood your testimony?

A. That is right.

Q. What price did you figure the product was to be sold at?

A. At fifty cents a gallon, is the price they put up.

Q. You got that price where?

A. That is the price Mr. McSwain put on it at that time. We had often talked of price. That is the first time he had ever definitely set it. That was in the contract—Shell was to set the price, we were not. But he discussed it with us, that is, with Mr. Peck and myself.

Q. And that price he announced to you was what, fifty cents a gallon?

A. Fifty cents a gallon, yes. He said he gave that price to Axelson. Axelson didn't object to it, and he said that would be the price they would set on.

Q. And you figured there would be a gross of \$3,000,000 of core oil that should be sold in the first year under this [103] statement of Mr. McSwain?

A. Yes, those were figures he supplied.

Q. And you calculated its worth based on that measuring stick, is that correct?

A. Yes, that is right.

(Testimony of Allan B. Ruddie.)

Q. In accordance with the contract?

A. Yes, that is right.

Q. And by carrying out those calculations you arrived at the figure which you pleaded as damages in the complaint; is that correct?

A. I think this would be more than that, but we arbitrarily—the complaint says in excess of \$100,000.

Q. Did Mr. McSwain give you any reasons at the time of these conferences that you speak of as to why he felt this company could enter a new market and command large proportions of the sale in that market of this product, Core-Min-Oil?

A. Yes, he said they had 5,000 salesmen that would sell this product, and he said that the salesmen would call on every foundry at least once a month in the United States.

Q. This discussion that you refer to, or these figures specifically were brought out, although I think you said they were brought out a number of times, just prior to the shipment to Axelson of a certain amount of Core-Min-Oil?

A. Yes, I remember that occasion.

Q. Do you know whether there was more than one shipment of Core-Min-Oil to the Axelson Foundry in Los Angeles?

A. No, only one that I was told about.

Q. At that time had the formula for Core-Min-Oil been changed at all from the formula which you had originally submitted to the Shell Company in early 1938 or late 1937?

Mr. Aurich: Are you calling for matters of his

(Testimony of Allan B. Ruddle.)

personal knowledge and not what somebody told him, Mr. Hackley?

Mr. Hackley: Yes, his own knowledge of what the formula [104] was.

A. No, I do not know.

Mr. Hackley: Q. Mr. Ruddle, did you know of any change in the formula that had been made at all during that period? A. No, I did not.

Q. So far as you know, did the formula remain the same as far as the Core-Min-Oil was concerned?

A. Yes, as far as I know.

Q. To your knowledge did Shell ever find any way of improving that formula by varying it in any way? A. No, not that I know of.

Q. State whether or not Mr. McSwain ever told you of any variations, if there were any variations that had been worked out by the Shell Company in the formula of Core-Min-Oil.

A. No, he did not.

Q. So far as you knew, were there any differences between the [105] formula of Core-Min-Oil at the time you had this last discussion with Mr. McSwain and the time when you first turned the product over to Shell?

A. Maybe I do not understand your question. They changed it to put it into one package, if that is what you mean.

Q. I mean the formula, not the container.

A. Not as far as I know.

Q. But I do understand from what you just said

(Testimony of Allan B. Ruddie.)

that Shell had this product changed to try to bring the product into one package; is that correct?

Mr. Aurich: The point I am trying to preserve here, your Honor, is this: I do not mind this witness testifying to anything that any Shell representative told him, but if he is going to testify that a formula was changed or a solution was changed because he knows it himself, that is one thing. If he wants to testify he thinks it must have been changed because somebody told him, that is quite another, and I think that distinction should be preserved.

Mr. Hackley: I will attempt to preserve it, Mr. Aurich. I have tried to isolate the witness' knowledge from statements which were made to him by representatives of the Shell and classify them exactly that way. May I hear what the question is, please?

(Question read.)

A. I know of no change, of my personal knowledge.

Mr. Hackley: Pardon me, your Honor: I just want to check back. I think I have completed substantially the examination here. You may cross examine.

Mr. Aurich: May it please the Court, the witness' deposition was taken on behalf of the defendants a fairly short while [106] ago, and in this deposition he was interrogated about many of the subjects that he has talked about here today. I had intended to

(Testimony of Allan B. Ruddie.)

offer this deposition, and I will offer it now and ask that it may be deemed read in evidence, unless your Honor wants to take the time to have it read, and have it considered as part of my cross examination rather than taking the time of this Court to repeat matters that are already in the record.

The Court: The original record is here? There may be conflicts.

Mr. Aurich: I will bring out the points I want. They are very few. But outside of that——

Mr. Hackley: If your Honor please, I have not looked at that record since it was completed. It has been in our file for only a short while. I have not determined what became of certain objections which were introduced to certain questions in the examination. I do not think the objections were very numerous.

Mr. Aurich: Very few and very infrequent.

Mr. Hackley: I would like to reserve those objections, so if this is going to be received in bulk, I can be heard on the objections.

The Court: I won't allow it to go in in bulk unless you stipulate to it.

Mr. Aurich: I am willing to go further than that. I am willing to stipulate that it may be received in evidence subject to all the objections you made and your general objection as to materiality and competency, of course. I am offering this deposition under the provisions of Rule 26(d) of the Rules of Federal Procedure, which says this:

“At the time of the trial, or upon the hearing of

(Testimony of Allan B. Ruddie.)

a motion [107] or interrogatory proceeding, any part or all of a deposition, so far as admissible under the rules of evidence, may be used against any party who was present or represented at the taking of the deposition, or who had due notice thereof in accordance with any one of the following provisions:"——

Subparagraph under that (d) reads as follows:

"The deposition of a party"—such as Mr. Ruddie—"or of anyone who at the time of the taking of the deposition was an officer, director or managing agent of a public or private corporation, partnership or association which is a party, may be used by an adverse party for any purpose."

Now, it is under that provision that I am offering the deposition, and for Mr. Hackley's protection, of course, I will stipulate that it should be received subject to whatever objections that are there noted. I do not mean to preclude him from offering any objections.

The Court: Are you willing to stipulate to that?

Mr. Hackley: Yes, I am willing to stipulate to that with the understanding, Mr. Aurich, I have reserved the stated objections and the objections to its relevancy, materiality and competency.

Mr. Aurich: That is right, any objection which is not one that is required to be made at the time of the taking of the deposition you may reserve.

Mr. Hackley: When is it proposed that these objections may be presented before the Court, be-

(Testimony of Allan B. Ruddle.)

cause the purpose of a trial is to settle the objections taken during the taking of a deposition?

Mr. Aurich: Any time you want.

Mr. Hackley: Normally—I might say I never—I might [108] say I never have been presented with this particular procedure before—normally the deposition would be read and argument heard on the objections after the deposition is read.

Mr. Aurich: If you want to go at it that way, that is satisfactory as far as I am concerned. This is the practice I have followed here for years, merely offering the deposition, and if there are any important points of evidence to be considered, they usually can be considered in the final briefs submitted by the parties.

The Court: Proceed, gentlemen.

Mr. Aurich: In connection with the deposition of Mr. Ruddle I offer in evidence a letter of December 9, 1938 from Mr. Ruddle to Mr. Peck, which was identified in the deposition, and ask that it be marked Defendants' Exhibit R. I am sorry we have to start here apparently with R, but the preceding letters are taken up in the deposition.

I also offer in evidence as part of the deposition a typewritten statement of alleged advantages of Core-Min-Oil, which is referred to in the deposition as Defendants' Exhibit T, and I ask that it be received in evidence and so marked.

(The letter of December 9, 1938, Ruddle to Peck, was marked Defendants' Exhibit R in

(Testimony of Allan B. Ruddle.)

evidence; the statement referred to was marked Defendants' Exhibit T in evidence.)

Mr. Aurich: Subject again to your objection,—

Mr. Hackley: Are you offering the balance of the exhibits that were taken in the course of that deposition?

Mr. Aurich: No, I am not, because they are not admissible.

Mr. Hackley: If your Honor please, I do not see how counsel can offer the record and not the depositions that he offered at that time in support of that record. [109]

Mr. Aurich: I am sorry we have to take this time to clear up this procedural difficulty. We might as well do it now and get it straight. Mr. Ruddle at the time of the taking of the deposition was asked to produce a tremendous number of notes. I have them before me. None of those were offered in evidence, not one. They were all marked for identification. The only other document that was offered in evidence at the time of the taking of that deposition is Defendants' Exhibit S, which is a copy of a patent that Mr. Hackley has already offered. If he wants me to duplicate the offer, I will offer Defendants' Exhibit S. None of the other exhibits were offered in evidence.

Mr. Hackley: If your Honor please, I do not see how he can offer a whole deposition and then omit all the documents that were discussed as a part of that deposition. Counsel wants everything that the

(Testimony of Allan B. Ruddle.)

witness said but nothing that was used as a foundation for it. If counsel will offer the entire deposition and the exhibits, I will by ten o'clock tomorrow morning offer to the Court any objections which we have to any part of the deposition. Otherwise they may be considered—[110]

Wednesday, December 3, 1941

10:00 A. M.

ALLAN B. RUDDLE

Resumed.

Mr. Aurich: Unfortunately, your Honor, we were unable to agree as to the method by which the deposition of Mr. Ruddle should be offered and received in evidence, together with—

The Court: I will offer a suggestion to you, then.

Mr. Aurich: Yes, your Honor.

The Court: Probably not known to the patent side of it. Why don't you cross examine him and then use your deposition wherever there is any conflict or anything?

Mr. Aurich: I had intended to do that, and further I had intended to offer the deposition in my case.

Cross Examination

Mr. Aurich: Q. In your testimony you have used the term "friability," Mr. Ruddle. Will you please give me your definition of that term.

A. "Friability," as I meant to use it, meant that

(Testimony of Allan B. Ruddle.)

after a core had been made out of Core-Min-Oil and the casting had been poured, then the sand would have to come out of the casting easily, and that was the term "friability" as I meant to use it.

Q. That would be true whether you used Core-Min-Oil or any other type of a core oil, wouldn't it?

A. That is true.

Q. In other words, you want a core to be of such a character that it will be readily collapsible in the casting to the extent that it would be easily removed therefrom by means of what is termed in the foundry industry a shakeout; is that right?

A. I never heard it called that name, but they tap it with a hammer, or they have machinery that they do it with. [111]

Q. You have never seen a type of apparatus used for removing the cores from castings in a foundry that is termed a shakeout?

A. I possibly have, but I didn't know it by that name.

Q. I am going to hand you a casting, after I have shown it to your counsel, and I would like to have you tell the Court, if you can, what part of that casting, if any, is the core, and what part, if any, is the casting.

A. Well, the core is on the inside and the casting is on the outside of the core.

Q. Is that what you would term a good core?

A. Well, I haven't tried it, but then this is supposed to be broken up easily like that. They tap

(Testimony of Allan B. Ruddle.)

it with a hammer, the way they test it over there in the foundry.

Q. In your opinion, Mr. Ruddle, is the core that is contained in this casting a good core or bad core from the standpoint of friability?

A. I would say that that did not have good friability.

Q. That did not have good friability?

A. In my opinion.

Q. Can you tell me whether that is a good casting or a bad casting?

A. Well, I would say that the casting itself is rough.

Q. Meaning it is bad?

A. Yes, I would say that.

Mr. Aurich: I now ask to have the casting and core shown to the witness offered in evidence and marked Defendants' Exhibit V.

Mr. Hackley: Just a moment. Was that offered in evidence, or just for identification?

Mr. Aurich: Yes, offered in evidence.

Mr. Hackley: Merely to illustrate the witness' testimony?

Mr. Aurich: That is all; merely to illustrate what you do not desire to have in a casting.

(The casting and core referred to were marked Defendants' [112] Exhibit V in evidence.)

Mr. Aurich: Q. If I understand your testimony correctly, Mr. Ruddle, this Defendants' Ex-

(Testimony of Allan B. Ruddie.)

hibit V is what you don't want to have happen in the art of core-making, is that correct?

A. Yes, that would be my answer.

Q. You have stated that you worked in the law office of Mr. James F. Peck for a period of approximately twelve or thirteen years doing legal research work for him. Are you an attorney at law?

A. I am not.

Q. Have you ever studied law?

A. No, only just assisted him in his law office.

Q. Are you a chemist?

A. No, I am not a chemist.

Q. What training and experience, if any, have you had in chemistry?

A. Well, I took chemistry when I went to high school, I think for two years, and then I had some experience with chemistry in the fireproofing of lumber.

Q. That was with Mr. Watson's solution?

A. Yes, that is it.

Q. Outside of the two years of chemistry that you had in high school, what has been your technical education and training along any lines?

A. Well, I guess no technical training.

Q. You have described to us the making of your core oil which you have identified by the name Core-Min-Oil, and I believe you testified that you commenced that work about the beginning of 1937. And I also understood you to say that the first foundry you ever visited in your life was the Santa Fe Foundry in Richmond; is that correct?

(Testimony of Allan B. Ruddle.)

A. That is right.

Q. Had you begun your work on the development of your core oil before or after your visit to the Santa Fe Foundry?

A. Well, some time prior to that, because I took samples that I had made to the Santa Fe Foundry. [113]

Q. When did you commence experimenting with the core oil composed of your solution which you have described and an asphalt emulsion?

A. I took samples of asphalt—asphalt emulsion, pardon me; that was about September, as I recall, of 1937.

Q. Where did you get the idea of using asphalt emulsion as one of the ingredients of your core oil?

A. Well, I was looking for and trying everything. That was one of the things that I tried.

Q. Where did you get the idea of using asphalt as one of the ingredients of your core oil?

A. I went to the Philadelphia Quartz one day to talk to Dr. Cleveland about the trying of Core-Min-Oil at the Macauley Foundry. I was then using a red oil and a pale oil in the solution, and the day that I was over there, why, he told me that the Union Oil Company had sent a gallon of asphalt emulsion there for him to try to waterproof corrugated paper boxes, and he said, “Do you want to take that and try it?” And he had suggested many other things for me to try. I tried different things.

Q. In short, the idea of using asphalt emulsion

(Testimony of Allan B. Ruddle.)

as one of the ingredients of your core oil came from Dr. Cleveland; is that correct?

A. I won't say the idea came from Dr. Cleveland. The asphalt emulsion came from Dr. Cleveland. Dr. Cleveland at that time did not know what I was doing or did not suggest how to try this.

Q. Had you used the asphalt emulsion in your core oil before you talked to Dr. Cleveland?

A. No, I had not.

Q. Prior to the time that you commenced experimenting with the asphalt emulsion as one of the ingredients of your core oil you had theretofore been experimenting with various types of mineral oil, red oil and pale oil?

A. That is right. [114]

Q. What were the results of those experiments that you had been performing with a core oil using those mineral oils; were they satisfactory or unsatisfactory?

A. The friability was not good.

Q. Well, can you answer my question directly, Mr. Ruddle, please; Were they satisfactory or unsatisfactory cores?

A. They were unsatisfactory; they were very comparable with that core you have in front of you there.

Mr. Hackley: May I ask that the record show what exhibit the witness is referring to?

Mr. Aurich: Q. What exhibit did you indicate?

A. The core and casting that you just referred to.

(Testimony of Allan B. Ruddie.)

Mr. Hackley: Defendants' Exhibit V.

The Witness: Yes, that is right.

Mr. Aurich: Q. To put it in a very few words, Mr. Ruddie, all of your experiments prior to the time that you commenced experimenting with asphalt emulsion as a core oil and during the time that you were using the red oil and the pale oil were failures; isn't that correct?

A. Well, yes, they were a series of tests that I had been running.

Q. Is your answer to my question Yes or No, Mr. Ruddie? A. Yes, they were failures.

Q. In connection with your work at Macauley Foundry you mentioned a man by the name of Otto Gosch.

A. I think it is Otto Gosch, or some such name.

Q. When was the last time you have seen Mr. Gosch?

A. I have seen him this last week. [115]

Q. Where is he now, do you know?

A. He is at the Macauley Foundry.

Q. In some of your previous testimony yesterday—I refer particularly to pages 26 and 27; I will show it to you—you said that "After we had determined the right proportions," "we felt that we had the product ready for somebody to market," and similar statements using the plural "we."

A. I meant——

Q. Whom did you mean by "we" at that portion of your testimony?

(Testimony of Allan B. Ruddle.)

A. I meant that I tried all of the proportions, but I discussed with Mr. Lydell Peck and Mr. James F. Peck about marketing it.

Q. Did Mr. Lydell Peck and Mr. James F. Peck agree with you that you had reached the desired formula at the time that you state you had reached it?

A. After I explained to them what I had.

Q. In some of your previous testimony you have also mentioned that you never lost a single casting made with Core-Min-Oil; is that correct?

A. That is a true statement.

Q. How many cores did you lose?

A. Well, that would be hard to say. Sometimes we lost all the cores that we made when we baked them in a direct fire oven. Sometimes we would make cores and there would be no losses. At that time I did most of my baking at noon, during the noon hour when the workmen would turn the fires off, and the heat from the ovens—I would put into the—put the cores into the ovens, and during the noon hour, why, I would bake maybe eight or ten cores. Those cores we would examine, and some castings were poured from them.

Q. Out of those eight or ten cores you say you would make at one time, how many castings would you pour?

A. Oh, maybe [116] one or two; maybe even more than that; three or four sometimes.

Q. Do you understand that pouring a casting is

(Testimony of Allan B. Ruddie.)

a correct technical description of what you are describing?

A. Well, now, maybe that is the wrong term, but that is the term that I have heard used at the foundry.

Q. In other words, what you would do would be to make up a series of eight or ten cores and you would take them out of the oven; you would inspect them, and you would pick out one or two of the most likely ones, and from that have castings made; is that right?

A. Yes, that is right. Not the most likely ones; we picked out those that were good cores; those that were soft we threw away.

Q. You haven't any idea of the percentage or ratio of cores made to castings made by you while at the Macauley Foundry, have you?

A. Oh, no, no; we made many more cores than we did castings.

Q. You have testified that since the Shell Company had your Core-Min-Oil, as you expressed it, the American Brake Shoe Company wanted the product. When was it that the American Brake Shoe Company wanted the product, since as you say, the Shell Company has had it?

A. Well, Lydell Peck told me that the American Brake Shoe Company had requested that—had told him that they wanted the product, would like to have the product; that was during the time that Spiri was running the test on it. And I went to

(Testimony of Allan B. Ruddle.)

the Shell Oil Company and told Mr. McSwain about it, and I also told Mr. Spiri about it.

Q. What did you tell Mr. McSwain?

A. I told Mr. McSwain that the American Brake Shoe Company had been asking to use that product in their foundries.

Q. And this was after Mr. Spiri commenced work on the problem? [117]

A. Yes, it was during the time that Mr. Spiri was working on the problem. Mr. Spiri told me that he was going to see them, but I never heard whether or not he did.

Q. Did you ever let the American Brake Shoe Company have your product?

A. No, we didn't.

Q. Why not?

A. Well, I understood the American Brake Shoe Company was a small outfit, had some foundries of their own, and we were trying to get this in the hands of somebody that would market it all over the United States.

Q. It was already in the hands of Shell, wasn't it?

A. We went—pardon me; I thought you meant prior to going to the Shell.

Q. No, I don't mean prior to going to the Shell. Your testimony is that after Shell had it, that the American Brake Shoe Company wanted it; is that correct?

A. That is right. You are right so far.

(Testimony of Allan B. Ruddie.)

Q. And that time is fixed as some time subsequent to the time that Mr. Spiri commenced working with your core oil; is that right?

A. That is right; that is right.

Q. For the purpose of trying to establish a date approximately, I may say that that time will be fixed as being sometime in the latter part of 1938—in November, at least. Now, what I want to know is, after November of 1938 when the American Brake Shoe Company wanted your product, as you say, why didn't you let them have it?

A. Well, I did go to the Shell Oil Company and tell the Shell Oil Company about it. We were under contract to the Shell Oil Company; we couldn't sell it to them.

Q. You say you were under contract with Shell and you couldn't sell it to them?

A. That is what I understood.

Q. After April 8, 1939 did you make any endeavor to take your [118] product to the American Brake Shoe Foundry Company? A. No, sir.

Q. Why not?

A. Because we were under contract to the Shell Oil Company.

Q. Didn't you know that the contract contained a provision that if Shell did not sell the required and specified minimum amount of Core-Min-Oil within a yearly period, you had the right to declare the contract non-exclusive?

(Testimony of Allan B. Ruddie.)

A. We were in no position to make a quantity of Core-Min-Oil and deliver it to anybody.

Mr. Aurich: I don't believe that quite answers my question, your Honor. May I have it read?

The Witness: That is the reason.

The Court: Answer the question.

A. Well, that is possible, but I know that we didn't declare it non-exclusive, and we took the order to Shell Oil Company. It wasn't an order; it was just an inquiry from the American Bitumuls Company—I mean American Brake Shoe Company.

Mr. Aurich: Q. In other words, after April 8, 1939 you made no effort to have the contract which is here in controversy between you and Shell declared non-exclusive? A. No, we did not.

Q. If I understand your testimony correctly, Mr. Ruddie, you know nothing at all about this American Brake Shoe Company wanting your product other than what Mr. Peck may have told you? [119]

A. No, that is all I know.

Q. Now, you have mentioned a man by the name of Mr. Spotswood in your testimony, and you have testified that at a certain time not given in your testimony Mr. Spotswood was assigned to the job of doing some work with your Core-Min-Oil at the Vulcan Foundry. When was it that Mr. Spotswood was so assigned?

A. Well, it was in the early negotiations with Mr. McSwain.

Q. Was it prior to the signing of the contract?

(Testimony of Allan B. Ruddle.)

A. Yes, it was.

Q. Was it a month prior to the signing of the contract?

A. Yes, I would say even longer than that.

Q. By testifying that Mr. Spotswood was assigned to the job of doing some work with your Core-Min-Oil at the Vulcan Foundry, do you mean in connection with his attempts to discover what was causing the softening of your cores on occasions?

A. Yes, that was one thing Mr. McSwain asked Mr. Spotswood; anyway, that was——

Q. I just want matters of your own personal knowledge, Mr. Ruddle.

A. Well, I can only report what Mr. McSwain told me. He did not tell—he didn't give Spotswood his orders in front of me.

Q. Tell us what Mr. McSwain told you that he told Mr. Spotswood.

A. Mr. McSwain said he was having Mr. Spotswood make a lot of tests and examine Core-Min-Oil.

Q. And this was at the Vulcan Foundry?

A. No, I think at Macauley Foundry is the first place I met Mr. Spotswood.

Q. Well, we are getting away from our subject. I want to confine you to your testimony that you gave yesterday wherein you testified that at some time not given in your testimony yesterday Mr. Spotswood was assigned to the job of doing some work with your Core-Min-Oil at the Vulcan Foundry.

(Testimony of Allan B. Ruddle.)

dry, and I am not talking about Macauley; I am directing your attention [120] specifically to the Vulcan Foundry. Is it your testimony now that Mr. Spotswood was assigned to do some work at the Vulcan Foundry in connection with his endeavor to overcome the difficulty you had been experiencing with the softening of your cores?

A. Yes, that is true.

Q. You have likewise testified that in February or March 1938 Mr. Spotswood made a number of cores in the Shell electric oven at the Vulcan Foundry. Is it your testimony that Mr. Spotswood was engaged in making cores at the Vulcan Foundry in February or March 1938?

A. Well, I won't try to attempt to fix the time, but I know that he was at the Vulcan Foundry with me. I went there with Mr. Waller and met him there.

Q. Let us take the date of the signing of the contract. Is it your testimony now that Mr. Spotswood was at the Vulcan Foundry making cores at any time prior to the date of the signing of the contract, April 8, 1938?

A. Well, I won't be sure about that. I do know that he worked on it at Martinez.

Q. I am confining myself to Vulcan, Mr. Ruddle, and the reason I am doing that is because you were so definite yesterday in placing Mr. Spotswood at the Vulcan Foundry in February or March 1938. I want to know if that is your correct testimony, whether you are positive of it.

(Testimony of Allan B. Ruddie.)

A. I know that he was at the Vulcan Foundry there, but what work he did at that time I wouldn't recall.

Mr. Hackley: Mr. Aurich, as long as there is a debate about the record, may we ask you to tell what page you are referring to and let me show the record to the witness?

Mr. Aurich: Yes; page 40.

Mr. Hackley: What line do you have in mind?

Mr. Aurich: The whole page. [121]

Mr. Hackley: I don't know what he wants; you may look at that transcript (handing transcript to witness).

Mr. Aurich: Here is where the witness started relating all these events that happened in February and March 1938 at the Vulcan Foundry.

The Witness: I think from reading this that Manuel was the coremaker that did the actual work at the Vulcan.

Mr. Aurich: Q. Let's go at it a little bit at a time, Mr. Ruddie, so that we can straighten it out. I will ask you again directly, At any time prior to the signing of the contract here in controversy between you and Shell did you ever see Mr. Spotswood make one core at the Vulcan Foundry?

A. No, I won't say that I did.

Q. At any time prior to the signing of the contract here in controversy, which is April 8, 1938, did you ever see Mr. Spotswood make one casting from any core made at the Vulcan Foundry?

(Testimony of Allan B. Ruddie.)

A. No; he wouldn't make a casting.

Q. At any time prior to the signing of the contract——

A. Before or after——

Q. ——here in controversy, dated April 8, 1938——

The Witness: I say before or after the contract was signed Spotswood never made a casting.

Mr. Aurich: Q. Prior to the signing of the contract here in controversy between you and Shell dated April 8, 1938 did you ever see Mr. Spotswood at the Vulcan factory at all?

A. Prior to signing that contract?

Q. That is right. A. Yes, I did.

Q. You are quite positive about that?

A. Yes, I am quite [122] positive.

Q. Did you ever see him mix any core sand with your Core-Min-Oil in the Vulcan Foundry prior to April 8, 1938?

A. I won't say positively that I saw him. My recollection is that he did, but I wouldn't say positive whether he did; I haven't any records or anything to show.

Q. You have no recollection now of what, if anything, Mr. Spotswood may have done at the Vulcan Foundry prior to the signing of the contract of April 8, 1938?

A. No, I wouldn't attempt to recall the dates, but I do know that he went to the Vulcan Foundry and there met Mr. Waller.

(Testimony of Allan B. Ruddie.)

Q. We can agree on the fact, Mr. Ruddie, that Mr. Spotswood was at the Vulcan Foundry?

A. Yes, I recall that.

Q. You have also made mention of a man by the name of Mr. Waller, and you testified that Mr. Waller was supposed to watch the work done and report to Mr. McSwain about it; is that right?

A. Yes, that is true.

Q. What else did you ever see Mr. Waller do in connection with the art of core-making?

A. He just observed it and made notes. He made notes of everything that was done at that time.

Q. You didn't see his notes?

A. Yes, I read many of his notes at the time he was writing them down, and he would read them to me. They were so well written, I remember, we commented on the notes.

Q. Did you ever see Mr. Waller mix any core sand with your core oil or any other ingredient?

A. No, I did not.

Q. Did you ever see Mr. Waller ever make a core?

A. No.

Q. Did you ever see Mr. Waller pour a mold?

A. Oh, no.

Q. I don't suppose you ever saw him make a casting?

A. No, I never saw him make a casting. [123]

Q. Do I understand your testimony to be that while Mr. Spotswood was making cores at the Vulcan Foundry at any time that you can recall that

(Testimony of Allan B. Ruddle.)

no casting losses resulted in so far as your personal observations were concerned?

A. That is true.

Q. How about the loss of cores?

A. Well, when they were baked in that oven that had the gas in it, there were many losses. Some days we would lose them all; other days they would not be affected. [123-A]

Q. What type of oven did they use other than the regular oven at the Vulcan Foundry?

A. That was an open fire oven where the flames came in contact, the gas comes in contact with the cores.

Q. I am afraid you did not listen to my question, Mr. Ruddle. My question was, What other type of oven did they use at the Vulcan Foundry other than the regular oven?

A. They only used the one type of oven.

Q. Were no cores made at the Vulcan Foundry in an electric oven?

A. Not belonging to the Vulcan Foundry, that I know of.

Q. Did Mr. Spotswood ever make any cores in an electric oven at the Vulcan Foundry?

A. Yes, he brought an electric oven from the Shell Company to the Vulcan Foundry and there made cores.

Q. In what oven were those cores baked that you said resulted in no casting losses?

A. Well, some of the castings were poured from cores that were baked in that open fire oven.

(Testimony of Allan B. Ruddie.)

Q. Now, with respect to those, what was the percentage of loss of cores?

A. Well, that would be hard to tell, because some days we didn't lose any, and other days we would lose them all.

Q. In other words, a 50-50 average would be fair?

A. I wouldn't attempt to average them. I would say more were lost than were good.

Q. Now, Mr. Spotswood used an electric oven, you say? A. Yes.

Q. When he used this electric oven, did you observe the results of the cores made therein?

A. Yes; they were all perfect.

Q. Every one was perfect?

A. Every one that I saw was perfect.

Q. There wasn't one thing wrong with any one of them?

A. Not that I saw when I was there.

Q. What is the largest size core that you ever made, or that you ever personally witnessed making, or witnessed the making of, in which the sand was first mixed with your Core-Min-Oil? [124]

A. I think a Union Diesel head out at the Macauley's was about the largest that I saw.

Q. How large was that?

A. Well, it stands possibly two feet high, and probably three feet long, and then it is—one end of it is very thick, and then it has very thin edges through it.

(Testimony of Allan B. Ruddie.)

Q. In other words, it is a core of varying thicknesses? A. Yes, it is.

Q. Were you there all the time that core was being made? A. Yes, I was.

Q. That was made by Mr. Otto Gosch?

A. Well, either Otto Gosch or one of the others in there.

Q. This is Macauley's?

A. At Macauley's Foundry, yes.

Q. How long did it take them to make that core?

A. Well, I don't recall just how long it was, but they were quite a little while doing it.

Q. A matter of hours?

A. Yes, I would say it was an hour or more; maybe two hours. There were quite a lot of parts to go into it.

Q. It was quite an intricate core?

A. Yes; they say it is the hardest core they have there to make at the Macauley Foundry.

Q. In your direct testimony you mentioned that one of the alleged advantages of your Core-Min-Oil was that it had a faster baking time than, say, linseed oil. A. Yes.

Q. You have also testified, I believe, that as the size of the cores increased, the relative baking times between linseed oil and Core-Min-Oil decreased?

A. Well, that was—yes, that was noticeable. It wasn't a great deal of difference.

Q. How far did you carry that experiment to determine whether or not you would ever reach a point at which a core made with linseed oil might

(Testimony of Allan B. Ruddie.)

not bake faster than a core made with Core-Min-Oil? [125]

A. Well, I do not think that is possible.

Q. You do not think that is possible?

A. No, I would not; not from any test that I ever run.

Q. Let us see what tests you made to determine that.

A. Well, that Diesel engine that we talked of—that was about the largest one I ever made—and that baked in about one-third of the drying time of linseed oil.

Q. How long did it take to bake that core two feet high and three feet long?

A. I won't attempt to give you the figures. I only recall it was about one-third of the time.

Q. You do not recall?

A. I couldn't tell you the time it took to bake it.

Q. Were any cores baked on that same occasion with linseed oil?

A. No; it was Houghton Oil we used there when we timed one of their cores and timed this. It was about one-third of the time.

Q. Did you time a Union Diesel head core made with Houghton Oil? A. Yes, we did.

Q. And what was the time that it took you to bake that?

A. I don't recall. All that I remember is that I marked down in my notebook someplace that it was done in one-third of the time.

(Testimony of Allan B. Ruddle.)

Q. What was the width of this Union Diesel head core?

A. Oh, as I recall, it was about a foot and a half wide, something like that.

Q. Of course, you did not bake that Union Diesel head core with Core-Min-Oil in Macauley's direct-fired oven, did you?

A. Yes, we did bake the Core-Min-Oil in Macauley's oven.

Q. With the fire on?

A. Yes, and it did not affect that one. I tried several others that it did affect.

Q. But you attempted to make more than one core of the dimensions and description you have given, with your Core-Min-Oil? [126]

A. Many of them.

Q. Can you recall one that was poured?

A. I can recall many that were good.

Q. I am speaking of the Union Diesel heads.

A. Yes, that is what I am talking about.

Q. There was more than one that was good?

A. Yes; and we poured one casting of Union Diesel, too.

Q. Was that one casting the only one you ever poured?

A. That was the only one we ever poured with Union Diesel.

Q. That is the only test you recall making to determine the comparative baking times between Houghton Oil or linseed oil on the one hand and

(Testimony of Allan B. Ruddle.)

Core-Min-Oil on the other, with respect to the size of the core?

Mr. Hackley: Would you fix that as to time? Is this before he took the product to Shell, Mr. Aurich?

Mr. Aurich: I am asking him what he did at any time.

A. Yes, this is prior to taking the product to Shell.

Q. I am asking about any time, Mr. Ruddle. I am asking you what you have done, not what somebody else may have done for you.

A. Well, that was done at the Macauley Foundry, yes.

Q. That is the only test you ever made to determine that fact? A. Yes, that is right.

Q. When did you first tell anyone connected with either of the defendants in this case of the percentages of sand, solution, emulsion and water that was used by you in making your cores?

A. Well, it was sometime after I first talked with Mr. McSwain about it. We made arrangements to go over to the Macauley Foundry, and at that time I made a core for them over there at the foundry.

Q. And did you tell them then what the percentages of the various ingredients I have mentioned were?

A. I don't recall whether [127] I did or not.

Q. Well, you do recall making a disclosure to Mr. Spotswood, as you have testified?

(Testimony of Allan B. Ruddie.)

A. Yes, yes; that was just within a few days afterwards, as I recall.

Q. That was made at the Macauley Foundry, or Martinez? A. At Martinez, I think.

Q. Will you give the percentages that you gave Mr. Spotswood at that time?

A. As I recall, I gave him 1750 cc's of dry sand, 80 cc's of solution, 50 cc's of asphalt.

Q. Is that all? A. That is all.

Q. What do you mean by "dry sand," Mr. Ruddie?

A. Well, sands in a foundry—they either have dry sand or wet sand.

Q. I don't understand whether you said "dried" or "dry."

A. No; they get it from people who sell sand. It comes either wet or dry.

Q. How does the sand that comes right from the mines or places where sand is procured appear? Is that a wet sand or a dry sand?

A. They generally use wet sand over at the Macauley Foundry, and in the Vulcan Foundry, but they can be supplied either way. I talked to the man——

Q. Did——

A. (Continuing): ——that supplies sand from —oh, what is the name of that—the company that Mr. Ballentine is the man that sells it. I have talked to him a number of times. Their offices are in the Crocker Building.

(Testimony of Allan B. Ruddle.)

Q. Did you ever experience any difficulty in the use of your Core-Min-Oil when you used wet sand?

A. Well, you have to change the proportions, because by using this formula I gave you, it gives you about the right consistency of [128] water. If you use wet sand, why, you have to cut down on your proportions.

Q. What would you cut down?

A. Well, you would cut down the amount of bulk asphalt emulsion, and also solution.

Q. What would you cut it down to?

A. Well, I couldn't give you the amount of that. The formula I used was dry sand.

Q. Well, I thought you just told me——

A. But your baking time immediately goes up as soon as you use the wet sand, because you have to dry the moisture out.

Q. In other words, if you use wet sand it takes longer to bake than if you use dry sand?

A. Yes, that is right.

Q. Didn't you tell me a moment ago they use wet sand at the Macauley Foundry?

A. With Houghton Oil, yes.

Q. What did they use when they used your formula, or your Core-Min-Oil?

A. We used dry sand.

Q. You used dry sand?

A. They have dry sand—they have both wet and dry sand.

Q. So that is another factor you must take into consideration in arriving at the alleged novelty of

(Testimony of Allan B. Ruddle.)

shorter baking time, that with Houghton Oil they were using a wet sand, while with Core-Min-Oil they were using dry sand, is that right?

A. We went into that with Mr. Ballentine. They said it didn't make any difference to them.

Q. I do not care what you went into with Mr. Ballentine. I didn't ask you that.

A. You mentioned a difficulty about it, and I tell you there isn't a difficulty there.

Q. You are not answering my question by telling me what someone else said.

I will ask that the reporter please read the question—I believe it is a simple question—and ask you, if you can, to [129] answer it.

(Question read.)

Mr. Aurich: Q. And this formula that you say you gave Mr. Spotswood was one which could not be used with wet sand, but, on the contrary, is one which must be used with dry sand, is that right?

A. That is right.

Q. And you cannot now tell me what formula you would use with your Core-Min-Oil if you wanted to make a core with wet sand?

A. No; I tried that. I had a million tests on that—a hundred tests on that—but I couldn't give you it now.

Q. Did you ever arrive at a satisfactory answer to that problem?

A. Yes, I think we did—I think I did at one time—but I couldn't give it to you now.

Q. You kept quite a few notes on your work

(Testimony of Allan B. Ruddle.)

that you did at Macauley's and elsewhere, didn't you?

A. Yes, I have volumes of notes.

Q. You have got some of your diaries here?

A. There is just a little bit left there. I have been unable to find it.

Q. Have you looked through those recently to see if there is any formula that would——

A. No, I have not.

Q. In addition to this formula that you say you gave to Mr. Spotswood, did you ever use a formula that consisted of 1750 cc's of sand, 125 cc's of solution, 40 cc's of asphalt emulsion, and 65 cc's of water?

A. Well, I might have given him that. That might be the one. I don't know offhand.

Q. You will notice in the formula that I have given you the percentage of solution has been increased and, in addition, we have added water. You would not be likely to use that with the wet sand, [130] would you?

A. I wouldn't know without trying it. I certainly could not carry it all the time in my head.

Q. Did you say you might have given that formula to Mr. Spotswood?

A. That is possible, yes. I tried to give him everything on Earth that I had found out about it.

Q. As a matter of fact, Mr. Ruddle, that formula I just read to you is just about your preferred method of making Core-Min-Oil, isn't it?

(Testimony of Allan B. Ruddie.)

A. Well, I wouldn't know without studying it.

Q. Well, I will write it out on a piece of paper and hand it to you so you can look at it, if you will, with the Court's permission. I am now handing you a sheet of paper on which I have written the formula that I have described to you a few moments ago, which is 1750 cc's of sand, 125 cc's of solution, 40 cc's of asphalt emulsion, and 65 cc's of water, and I will ask you to look at it, and study it, and tell me whether or not that is the best formula that you know of for making your Core-Min-Oil?

A. No, this would not work.

Q. Do you consider that a good formula for making your Core-Min-Oil?

A. No, I would say it would be too wet.

Q. It is not one that is suitable for making cores, is that right?

A. That would be my guess now, without trying it.

Q. As a matter of fact, Mr. Ruddie, that is the formula you set forth on page 2 of your patent here in evidence, Plaintiff's Exhibit 1, is it not? I call your attention to page 2.

A. Well, that is an example.

Q. Example of what?

A. That is one example of the striving—how this is used in the patent.

Q. How what is used in the patent?

A. Just a minute. This is typical proportions, it says, used in practicing the present invention.

(Testimony of Allan B. Ruddie.)

It is not an exact formula. That particular formula, I [131] think, would be too wet, without trying it.

Q. Had you never tried that formula set forth on page 2 of your patent, Plaintiff's Exhibit 1?

A. I couldn't tell you right now whether that formula was tried or not. This formula—this was all done by a patent office. I don't know that I could describe this.

Q. What do you mean was done by a patent office?

A. This patent was gotten out by a patent office.

Q. You mean by a patent attorney?

A. Yes, that is right. I understand that these are limits which are taken into consideration.

Q. Well, you recall that the application for this patent was presented to you before it was filed, don't you?

A. Yes; surely. I had to sign it.

Q. You signed it. You signed it under oath?

A. That is right.

Q. And read it? A. That is right.

Q. You understood it at that time?

A. Yes, I understood the patent, but I don't know that I knew exactly that formula, or that particular formula, or not.

Q. To sum it up, at the present time you have no present recollection of whether or not the formula for making your core oil appearing on page 2 of your patent, Plaintiff's Exhibit 1, which is

(Testimony of Allan B. Ruddle.)

the formula I have last referred to, was satisfactory for making a core?

A. No, I would not know. I wouldn't be able to tell you right now.

Q. Is there any other formula for mixing your Core-Min-Oil with sand, for core oil purposes set forth in the patent?

Mr. Hackley: Referring to the patent, Plaintiffs' Exhibit No. 1.

Mr. Aurich: That is right, Exhibit 1. I won't take the time——

A. There is no formula here. There is nothing specific about it. [132]

Q. We won't take the time now to read it, Mr. Ruddle, but for your information, I will state for the benefit of the Court, this patent, Plaintiffs' Exhibit No. 1, contains a formula for mixing a solution which is used in the product Core-Min-Oil, which formula appears on page 1, column 1, and also in claims 2 and 3 on page 2. In addition to that, in the first column on page 2 of Plaintiffs' Exhibit 1, appears a formula for making Core-Min-Oil, which is the formula I have referred to, or rather, directed the witness' attention to, which is the only formula for that purpose in the patent.

Mr. Hackley: If your Honor please, I think that counsel may have inadvertently misled the Court a little. I would like to read the language counsel is referring to. Starting on line 3, page 2, of Patent 2,193,346, it says:

(Testimony of Allan B. Ruddie.)

“The following formula is cited as typical of the proportions used in practicing the present invention, but the exact proportions given are not to be taken as actual nor as limiting the scope of the invention.”

And then follows the formula:

“1750 cc's dry sand, 125 cc's of solution approximately: Two gallons of water, one to ten ounces of aluminum sulphate, one to ten ounces of alkali silicate, one to ten gallons of an alkali metal silicate, 40 cc's of asphalt emulsion, and 65 cc's of water.”

And then follows the mixing procedure. There is no reference to Core-Min-Oil anywhere in there.

Mr. Aurich: Q. What is the formula that your counsel has just read into the record and which appears on page 2 of your patent, Plaintiffs' Exhibit 1? Isn't that the formula for making Core-Min-Oil?

A. No; that is an example of a formula that was used in making Core-Min-Oil. [133]

Q. You are quite sure of that, Mr. Ruddie?

A. Well, it is meant to be an example.

Q. Is that a formula for making Core-Min-Oil, or is it not?

A. I would say it is not the best formula.

Q. Is it a formula for making Core-Min-Oil?

A. Yes, it is a formula.

Q. For making Core-Min-Oil? A. Yes.

(Testimony of Allan B. Ruddie.)

Q. Referring again to that formula appearing on page 2 of your patent, Plaintiffs' Exhibit 1, what is the ratio of solution to emulsion?

Mr. Hackley: I object on the ground the patent speaks for itself, your Honor. It is all there.

The Court: Overruled.

A. Well, it is 125 cc's of solution and 40 cc's of asphalt.

Mr. Aurich: Q. Can you tell me what the ratio is, in parts? Roughly it is $12\frac{1}{2}$ to 4, isn't it, Mr. Ruddie? A. Yes, that is right.

Q. In the formula that you say you may have disclosed to Shell, or did disclose to Shell, consisting of 1750 cc's of dry sand, 80 cc's of solution, and 50 cc's of emulsion, the ratio of solution to emulsion is eight to five, is that right?

A. That is right.

Q. Did you ever make a core with Core-Min-Oil in which you used a ratio of $12\frac{1}{2}$ parts of solution to approximately four parts of emulsion?

A. Oh, yes, I have; every possible proportion I could think of. [134]

Q. Did you ever give Shell any other formulas for making your Core-Min-Oil?

A. Well, I won't say that I did. When I gave him the one I related there that you have written down, I think it was the best one—I gave them that.

Q. You think the best one was the 1750 cc's of sand, 80 cc's of solution, and 50 cc's of emulsion?

(Testimony of Allan B. Ruddle.)

A. That is right.

Q. You do not think much of this formula in your patent, Plaintiffs' Exhibit 1?

A. No, I wouldn't say that is a good formula.

Q. Did you ever use a formula for making Core-Min-Oil which was composed of 2100 cc's of sand, 80 cc's of solution, 50 cc's of emulsion, and 20 cc's of water?

A. Yes, I have.

Q. By the way, what is meant by "cc's," Mr. Ruddle?

A. Cubic centimeters.

Q. Where did you use that formula that I have just described?

A. I used that in Macauley Foundry.

Q. For what purpose?

A. Well, in making castings, the part that has to have the thin edges, that has to be strong, why, you have to have a little richer mixture. In the parts of the castings where it does not require such strength, you can use a weaker mix, and that one you just related would be a weaker mix.

Q. Did you tell Shell all about that when you talked to them about your Core-Min-Oil?

A. I told them everything I could think of.

Q. Can you tell me one occasion now when you told them, "When you want a core, or when you want to make a core as you have last described, do not use the formula for making Core-Min-Oil that I first gave you, but use a formula consisting of 2100 cc's of solution"—and et cetera?

(Testimony of Allan B. Ruddie.)

A. I don't recall any specific time of telling them that, but I know I did.

Q. You know you did?

A. Yes, I am positive that I did. [135]

Q. Has anyone from either of the defendants herein ever advised you that the Shell Company was abandoning all of its efforts to manufacture or sell any type of core oil?

A. No; I think you did.

Q. That was the first you knew about it?

A. Yes, that was the first that I recall. I think Mr. McSwain said they were not going to sell Core-Min-Oil, or even what they had developed, because they were unable to patent it.

Q. Outside of what Mr. McSwain told you and what I told you, you had no knowledge on the subject at all?

A. No, that is all.

Q. And when you refer to my telling you, that was on the occasion of taking your deposition within the last month?

A. That is right.

Q. Nobody else in the Shell Company ever advised you of that fact?

A. Well, there might be something, letters or something; I don't recall now.

Q. As a matter of fact, don't you recall receiving a letter from Mr. McLaren, one of the vice-presidents of the Shell Company, wherein he told you that the Shell Oil Company was abandoning all of its efforts to manufacture or sell or exploit or develop any type of core oil, or any other product, for foundry use?

(Testimony of Allan B. Ruddie.)

A. Well, that might be in the letter. I won't say that it was not.

Mr. Aurich: Q. I now show you a copy of a letter dated March 8, 1940, addressed to you and Mr. Peck by registered mail, Return Receipt Requested, which has the typewritten signature attached thereto. I have heretofore shown a copy of the letter to your counsel, and he states that you received the original of that [136] letter shortly after the date it bears. Is that correct?

A. That is correct.

Q. Then you did know long prior to your deposition that was taken in this case, in November, that the Shell Company had expressed its intention of abandoning all efforts to market any type of core oil, is that right?

A. Yes, I received that letter.

Mr. Aurich: For your Honor's information, I will read the pertinent portions. I will read the first paragraph:

"We have recently reviewed the facts concerning our efforts to manufacture and market core oils and other products for related foundry use as disclosed and claimed in the pending applications of Peck and Ruddie subject to the agreement between yourselves and Shell Oil Company dated April 8, 1938. The completely discouraging results of this review have confirmed and enhanced our determination to completely abandon all efforts to manu-

(Testimony of Allan B. Ruddle.)

facture or sell or employ any kind or type of core oil or other products for related foundry uses.”

The letter then goes on and advises these plaintiffs that even as of the date of April 8, 1943, the five-year period referred to by Mr. Hackley in his opening statement, the defendants are not going to proceed with the contract, and I will ask that the letter be received in evidence and marked Defendants’ Exhibit W.

Mr. Hackley: I object to the offer, your Honor, on the ground that this is a document which was written after the filing of this action, and has no bearing upon the issues of this case, and no materiality in connection with it.

The Court: Objection overruled. It may be marked.

(The letter referred to was marked Defendants’ Exhibit W in evidence.) [137]

Mr. Aurich: Q. Mr. Ruddle, did I understand your testimony correctly yesterday to the effect that before the contract between you and Shell was signed, that you made a confidential disclosure of your Core-Min-Oil to Shell?

A. Well, I made disclosures to Shell of a confidential nature regarding all of the discoveries that I made, to Shell, with the exception of how to manufacture the solution. That part of it I gave to Shell after the contract was signed.

(Testimony of Allan B. Ruddie.)

Q. Then the answer to my question is "Yes."

A. Yes.

Mr. Aurich: Q. Now, just in detail, what was the nature of your confidential disclosure to which you referred?

A. That I had found a use for asphalt in the manufacture of core materials, foundry.

Q. You had found it?

A. Yes, I had found the way of using asphalt, asphalt emulsion.

Q. And that is what you meant when you testified that you made a confidential disclosure to Shell?

A. Yes, and how to use it.

Q. That is, in some of the proportions we have discussed before? A. Yes, that is right.

Q. You mentioned a moment ago that you held back the method of manufacturing the solution. Why did you do that?

A. Well, because we were afraid of the Shell Oil Company; we were afraid that they would take our ideas—my idea—and would use it for themselves, and we would not share in the market.

Q. As a matter of fact, Mr. Ruddie, up to the time that you testified on the stand here yesterday, your idea of Core-Min-Oil was that asphalt was something that could be used with your solution [138] which you had theretofore termed a secret solution, is that right?

A. Well, the whole idea was a secret solution. The whole discovery was a secret.

(Testimony of Allan B. Ruddie.)

Q. You mean, now, the whole discovery of the use of asphalt emulsion, together with a secret solution, was secret? A. Yes.

Q. You had not disclosed that to anyone before you went to Shell?

A. Only the Standard Oil Company, is the only people.

Q. How about General Petroleum——

A. We showed the General Petroleum some cores that had asphalt emulsion in them.

Q. We will come to that later.

A. No secret of how we made it, or anything like that.

Q. If you were afraid of Shell, why did you tell them that it had asphalt emulsion?

A. Well, we wanted the Shell to be interested in it, so we had to tell them that it had asphalt emulsion in it; otherwise the Shell would not be interested in it.

Q. And you kept your secret solution a secret until after the signing of the contract, so that no matter what Shell did, they could not make your core oil, is that right? A. That is right.

Q. At the time that you made this alleged disclosure to Shell, did you tell Mr. McSwain, "Now, Mr. McSwain, I have a new core oil. It is composed, broadly, of two ingredients: one is a secret solution, and I am not going to tell you what that is; but the other is asphalt emulsion. Now, I am telling you that asphalt emulsion is used as a secret,

(Testimony of Allan B. Ruddie.)

confidential disclosure to you, and I want you to [139] promise to me that you won't tell anyone about it"?

A. Well, not to tell anyone outside of his company, yes.

Q. You told him that in substance—outside of his company? A. Yes.

Q. And when was that?

A. When I first talked to Mr. McSwain.

Q. On Market Street?

A. Either on Market Street or in his office the next day—yes, on Market Street, that very first time.

Q. And you also told him on Market Street, you said, "Now, Mr. McSwain, when I tell you that my core oil has asphalt emulsion in it, you understand that is a secret and you are not to divulge it to anyone outside of your company"; is that what we are to understand? A. Yes.

Q. How about Mr. Waller? When did you tell Mr. Waller that the secret of your solution was asphalt emulsion?

A. I think the first time that I talked to him.

Q. And you told him, in substance, the same thing that you told Mr. McSwain? A. Yes.

Q. How about Mr. Harsch? Did you ever mention it to him?

A. I think I did, at the same time.

Q. And you told him the same thing?

A. Yes, I know I did.

(Testimony of Allan B. Ruddie.)

Q. How about Mr. Spotswood?

A. I told him the same thing.

Q. And you, in all these conversations, specifically enjoined each and every one of these persons to confidence?

A. That is right.

Q. And told them they could not talk about it outside of the company?

A. That is right.

Q. Why was all this secrecy about the use of asphalt emulsion, Mr. Ruddie?

A. Well, we were afraid the Shell Oil Company, because they were large manufacturers of asphalt emulsion, would find some way of using asphalt emulsion for that purpose, and leave us out [140] of it.

Q. Did you know at that time whether asphalt emulsion had ever been used as a core oil before?

A. I was told by Mr. McSwain at that time that they had never used it.

Q. That is not my question.

I will ask to have the reporter read it, please.

The Court: Read the question, Mr. Reporter.

(Question read.)

A. No, I did not.

Mr. Aurich: Q. You did not know that the use of asphalt emulsion was old in the art?

A. No, I did not; I never heard of it.

Q. You found that out soon after your first conversation with Mr. McSwain, didn't you?

Mr. Hackley: I object to that, your Honor, as

(Testimony of Allan B. Ruddie.)

irrelevant and immaterial to any issue in this proceeding. The question of novelty is not before us.

The Court: He may answer it.

The Witness: Can I have the question again, please?

(Question read.)

A. No, Mr. McSwain said he had never heard of asphalt emulsion being used by——

Mr. Aurich: Q. Do you know now, today, whether the use of asphalt emulsion in a core oil was a new idea with you, or whether it was something that was old in the art?

Mr. Hackley: Your Honor, I object again on the ground that it is irrelevant and immaterial to any issue of this case. The question of novelty is not, under the authorities, an issue in a proceeding of this character.

The Court: The objection is overruled. You may answer. [141]

A. No, I don't know now.

Mr. Aurich: Q. You do not know that now?

A. No, I do not.

Q. Did you ever hear of a patent to a man by the name of Thomas?

A. Yes, I have heard of the Thomas patent, because the Shell bought that patent.

Q. Do you know why they bought it?

A. No, I couldn't tell you why they bought it.

Q. You have no idea on that at all?

A. No, I couldn't tell you.

(Testimony of Allan B. Ruddle.)

Q. You had no discussions with any representatives of the Shell regarding the Thomas patent?

A. Well, it is possible I did, but I don't recall.

Q. The Thomas patent is mentioned in your contract with Shell, isn't it?

A. Yes, but then I couldn't tell you now what was in it.

Q. Do you know what the purpose of putting it in the contract was?

A. Well, Mr. Gratama said it might have a nuisance value of some kind.

Q. Well, Mr. Ruddle, as a matter of fact, don't you know that long before the contract between you and Shell was signed, the Shell Company had made a cursory investigation of the prior art and had found a patent to a man by the name of Thomas, patented in 1925, which claims broadly the use of emulsified asphalt, sand and water, as a core oil?

A. I do now remember that, but I didn't until you mentioned that.

Q. And this patent which I now show you, No. 1,561,956, is the patent to which I refer, is that right?

A. And I never saw the patent until a long time after the contract was signed, as I recall, and I heard Mr. Gratama mention it at that time.

Q. And you heard Mr. Gratama mention it covered the use of [142] emulsified asphalt as one of the ingredients for core oil, is that right?

A. Well, I won't recall what he said about it; he said it was a patent at that time.

(Testimony of Allan B. Ruddie.)

Q. Do you have any idea why you and Shell decided that this Thomas patent to which I have referred should be purchased from the inventor if it could be?

A. I heard Mr. Gratama say it might have a nuisance value of some kind.

Q. That is all you can recall?

A. That is all I can recall.

Q. And you say, "Okay, if you think it has a nuisance value, go buy it"; is that right?

A. That is as I remember it, yes.

Q. You said, "If it has a nuisance value, and you say so, you go buy it and I will pay half of whatever you pay," is that right?

A. Yes, that is right.

Mr. Aurich: I would like to offer in evidence Patent No. 1,561,956, patented November 17, 1925, which has been identified by the witness, and ask that it be marked Defendant's Exhibit X.

Mr. Hackley: May I ask you to state the purpose of the offer?

Mr. Aurich: Yes. The purpose of the offer is to show this witness' statements that he disclosed a secret, anything secret to the Shell Oil Company, when he told them that his solution contained asphalt emulsion, are incorrect.

Mr. Hackley: If your Honor please, I object to the offer on the ground it is irrelevant and immaterial to any pleaded issue of this case, or any issue which can come before your Honor in a proceeding of this character, and I would like to reserve a

(Testimony of Allan B. Ruddle.)

motion to strike this testimony relating to this Thomas patent, and anything relating to novelty, on the basis of authorities which I am prepared to present to your Honor either here or in the course of the briefing of this case.

The Court: Objection overruled. It may be received. [143]

(The patent referred to was marked Defendants' Exhibit X in evidence.)

Mr. Aurich: Q. Just one final question with respect to the Thomas patent, Mr. Ruddle. Can you tell me the first time that you knew that the Thomas patent related to the core oil containing emulsified asphalt? A. Yes.

Q. With respect to the date of the signing of the contract?

A. Well, I would say it was just a few days before the contract was signed.

Q. Now, prior to going to the Shell Company with your Core-Min-Oil, I understand you took your product to the American Bitumuls Co., is that right? A. That is right.

Q. You had quite a few negotiations with that company, didn't you? A. Yes, we did.

Q. Do you recall a survey that they made for you? A. A survey?

Q. Yes.

A. What do you mean by a survey?

Q. Did you ever receive a report from the American Bitumuls Co. regarding the welcome—if

(Testimony of Allan B. Ruddie.)

I may use that term—that your core oil would be likely to receive in the foundries, large foundries in the East? A. I don't recall. [144]

Q. I will come to that a little later, then. Do you know the business of the American Bitumuls Company?

A. It is the asphalt department of the Standard Oil Company. They use the asphalt for road-making, I understand.

Q. And it is a manufacturer of asphalt and asphalt emulsion? A. That is right.

Q. Why did you take your product to them before going to Shell?

A. Because they were a manufacturer of asphalt emulsion, and Mr. Lydell Peck was a friend of Harry Collier, who was the head of the Standard Oil Company—who was vice-president, I think, at that time.

Q. What you tell the American Bitumuls Company was contained in your Core-Min-Oil?

A. We told the American Bitumuls Company that it was an asphalt emulsion.

Q. And what else?

A. A solution—a sodium silicate solution.

Q. Did you tell them what was in the solution?

A. We did not.

Q. Did you enjoin them to secrecy with respect to your alleged disclosure? A. We did.

Q. That you were using asphalt emulsion as a core oil? A. I did.

(Testimony of Allan B. Ruddie.)

Q. You also had some negotiations with the Union Oil Company; is that right?

A. Yes, that is right.

Q. By the way, before we leave American Bitumuls, will you tell me the names of the individuals that you personally enjoined to secrecy from disclosing the idea that an asphalt emulsion could be used as a core oil?

A. Yes; a Mr. Buckley, who was a chemist at the American Bitumuls Company.

Q. What is his first name?

A. I couldn't tell you. [145]

Q. Who else?

A. I think Mr. Bly was one.

Q. How do you spell that?

A. I think it is B-l-y.

Q. What is his first name?

A. I couldn't tell you.

Q. What connection did he have with the company?

A. He went out to Macauley Foundry with Mr. Buckley——

Q. Do you know what his capacity was?

A. No, I couldn't tell you what his capacity was. He is in the sales department, I think.

Q. Sales? A. I think so.

Q. All right. Who else in the American Bitumuls Company did you enjoin to secrecy in the manner you have stated?

A. Mr. Smith, who was president of it and Mr. Mac—I don't remember the last name.

(Testimony of Allan B. Ruddie.)

Q. M-a-c?

A. M-a-c-something; I can't recall what it was.

Q. By the way, in connection with all these injunctions of secrecy or alleged injunctions of secrecy, did you ever write a letter to the American Bitumuls Company telling them that they couldn't tell anybody that asphalt emulsion was used as a core oil? A. No, we just told them that.

Q. Did you ever write any letter to Shell telling Shell, "Now, here, I have told you that you can use asphalt emulsion as a core oil. That is my secret; you can't tell anybody"?

A. No, I don't think we ever wrote letters to anybody; just told them.

Q. You never wrote any letter to anybody along those lines, did you? A. No.

Q. Why didn't you tell American Bitumuls what your secret solution was?

A. Well, we were trying to keep them from making something out of it—out of the discovery—tried to hold as much back as we could in order that we might get [146] into a contract before we told them all of it.

Q. You were holding back what you then considered to be the most important part of your Core-Min-Oil; is that right?

A. Well, together; one isn't good without the other.

Q. You don't consider one more important than the other? A. No.

Q. You consider them both of equal merit?

(Testimony of Allan B. Ruddle.)

A. Yes, that is right.

Q. Now let us go to the Union Oil Company. Oh, before I forget it: Are there any other persons that you enjoined to secrecy that are connected with the American Bitumuls Company?

A. No, that is all I recall now.

Q. Now we will go to the Union Oil Company finally. When did you go to the Union Oil Company?

A. Well, I didn't go to the Union Oil Company. I think Mr. Austin used to work for the Union Oil Company, and he talked to a chemist that he knew in the Union Oil Company, and I think that was the extent of our negotiations with the Union Oil Company.

Q. Then you actually had no negotiations with the Union Oil Company? A. No, that was all.

Q. And you never talked to them at all about it?

A. No, I never did.

Q. You don't know what Mr. Austin told them?

A. No.

Q. Just answer Yes or No, if you please.

A. No, I don't.

Q. Now, you mentioned some negotiations with the General Petroleum Company. Why did you go to the General Petroleum Company?

A. Well, Mr. Olson of the General Petroleum Company came here from Los Angeles, and we took him out to the Macauley Foundry,—Mr. Lydell Peck, Mr. Paul Austin and myself.

(Testimony of Allan B. Ruddie.)

Q. And what was said.

A. And he looked at the product, [147] and expressed himself as being interested in it. And I asked Mr. Olson to treat this as confidential, the use of asphalt emulsion with this solution in the manufacture of cores.

Q. Why was he interested in it?

A. The General Petroleum also made asphalt emulsion too.

Q. Did you tell him what else was in your Core-Min-Oil outside of asphalt emulsion?

A. Only that we used a silica solution.

Q. Did you tell him the ingredients of that?

A. We did not.

Q. You made a very definite effort in all these negotiations with all these individuals, with your work at Macauley's, your work at Vulcan, to make sure that no one knew what was contained in your solution that formed part of your Core-Min-Oil, didn't you?

A. That is the only part that we could keep people from knowing what we used.

Q. My question is, That is what you did?

A. My answer is, It is the only way that we could do it.

Q. I assume that you mean that you did it, and that is the only way you could do it; is that right?

A. That is right.

Q. But you didn't have any objection to people knowing that you were using asphalt emulsion?

(Testimony of Allan B. Ruddle.)

A. Well, we tried to keep it as near secret as we could from people.

Q. Did anyone at Macauley's know that you were using asphalt emulsion?

A. I doubt very much if anyone there did know it.

Q. How did you keep your asphalt emulsion there?

A. I kept it in a can and had a number on it.

Q. No label? A. No label.

Q. It wasn't labeled "Union Oil Emulsion"?

A. No, it wasn't; it had just a number on it.

Q. Nobody at Macauley's knew what your secret solution was? [148]

A. No. I had many cans there, and I doubt very much if anybody knew anything I had there.

Q. How about the Vulcan Foundry? Do you think they ever knew that you were using asphalt emulsion?

A. That was after the Shell Oil Company had taken over the thing; I don't know about whether they told them or not.

Q. The Shell Oil Company, according to the contract at least, took this over about April 8, 1938?

A. That is right.

Q. And you worked at the Vulcan Foundry for a period of at least two or three months before that time?

A. Yes, with the Shell Oil Company.

Q. That is right; with the Shell Oil Company there as an observer; is that right?

(Testimony of Allan B. Ruddle.)

A. That is right.

Q. Mr. Waller was there watching what you were doing; is that right?

A. Well, I would bring the solution there or the Shell would bring the solution there.

Q. Where would they get it?

A. I gave it to them, and they would bring the asphalt emulsion. Generally they would bring the asphalt emulsion and I would bring the solution to Macauley Foundry.

Q. And then you would either make up the mix and make the cores, or have the coremaker make the cores, and Mr. Waller would observe what you were doing? A. That is right.

Q. During that period of time that you were making cores at the Vulcan Foundry with your Core-Min-Oil and Mr. Waller was there observing you, do you know whether or not Vulcan knew that you were using asphalt emulsion?

A. I don't know; I didn't tell anybody there what was in those cans.

Q. What kind of cans did they come in at that time—the asphalt emulsion?

A. Generally just plain gallon cans with [149] no marks on them. I think the Shell emulsion can had Y-104 on it.

Q. And, therefore, it is definitely your testimony that prior to the date of the signing of the contract herein on April 8, 1938 you made a confidential disclosure of your Core-Min-Oil to Shell Oil Company?

(Testimony of Allan B. Ruddie.)

A. I did not disclose it all to the Shell Oil Company prior to April 8.

Q. You made a confidential disclosure of part of it; is that your testimony now?

A. That is right.

Q. No doubt in your mind about that?

A. None at all.

Q. That isn't something that you have just thought up now? A. No, that was——

Q. That isn't something you thought up between the time your deposition was taken less than a month ago and the time you took the stand here today?

A. No. If I had anything else in my deposition, I didn't mean it; I didn't understand your question.

Q. You say you didn't understand my question?

A. Probably if I have anything in there other than that, that I didn't understand your question if I answered differently.

Q. You are ready to say that without knowing what questions I am going to refer to? Can you answer that question?

A. Well, I just assumed that you were going to confront me with some answer that I have made different than my answer now.

Q. Your assumption is correct. I am going to call your attention to a portion of your deposition which was taken on November 10, 1941, less than a month ago. It commences at page 231, line 12, in which I directed your attention to a portion of your

(Testimony of Allan B. Ruddle.)

complaint—I think you may be able to follow what I refer to by just reading the testimony; if not, I would like to [150] have you say so and I will give you your complaint. The question was this,—propounded by me:

“Q. Now, let’s look at paragraph V of this complaint, which is on page 3. In that paragraph you allege ‘that commencing on or about February 1, 1938, and after a confidential disclosure of said product and demonstration thereof to members of the executive personnel of Shell Oil Company’—the Shell Oil Company did certain things. What confidential disclosure did you refer to at that place in your complaint?

“A. Well, that date is wrong.”

Then follows an objection by your counsel, and I said,

“What was your answer, Mr. Ruddle?” And you said “I would say the date is wrong.

“Q. The date, February 1, 1938?

“A. Yes. In January, 1938——”

“Q. Did you ever make a confidential disclosure of your Core-Min-Oil to Shell Oil Company about February 1, 1938? A. No.

“Q. The first alleged confidential disclosure of your product was made to the Shell Company after the signing of the contract here in suit on April 8, 1938, is that right?

“A. That’s right.

“Q. The date of February 1, 1938, appear-

(Testimony of Allan B. Ruddle.)

ing on line 19, page 3, paragraph V; is that correct?

“A. Well, I don’t know what that refers to; it might refer to the information that I gave them regarding making cores and things of that nature. We treated that as confidential.

“Q. And you appreciate, Mr. Ruddle, that this is your complaint, that you read it over very carefully, presumably, and at least subscribed to it before a notary public, and if you don’t know [151] what you meant by your language, somebody else is going to have a rather difficult time in arriving at that knowledge. What I want to find out is what is the confidential disclosure that you made to Shell commencing about February 1, 1938?

“A——” after a little colloquy—“I will say that date was in error.

“Q. That is the date at the place I have referred to on line 19, page 3? A. Yes.

“Q. That should be ‘commencing about April 8, 1938’?

“Yes, that’s right.”

Do you recall that those questions were asked of you and you gave those answers?

A. Yes, that is right.

Q. What is the fact?

A. The confidential disclosure that I referred to there is where I gave them the secret formula—we called it that solution, the manufacture of the solution.

(Testimony of Allan B. Ruddie.)

Q. Then you weren't telling us all of the truth, at least, at the time of the taking of your deposition?

A. I wasn't including the discovery of using asphalt emulsion together with this solution that I took to the Shell Oil Company at that time.

Q. You had forgotten that at the time your deposition was taken?

A. No, I didn't forget it; I didn't understand your question.

Q. Will you now enumerate to me all of the reasons why you took [152] your Core-Min-Oil to the Shell Oil Company.

A. Yes. The reason I took it to the Shell Oil Company was that I wanted to find a market for a product I thought was ready to be put on the market.

Q. Is that all your answer?

A. That is right.

Mr. Aurich: Q. Is that the only reason you took your product to the Shell Company?

A. Well, and also there was a few things in it, such as the gas in the ovens that bothered the core, which I thought that a company that had the laboratories such as the Shell could determine what the cause was.

Q. Anything else?

A. Well, those are the principal things that I took it there for.

Q. Let me be the judge of what the principal things are; just give me your reasons.

(Testimony of Allan B. Ruddie.)

A. Well, the principal reason was to find a market, to find somebody that would sell it.

Q. As a matter of fact, there were three main reasons that you took your Core-Min-Oil to the Shell Company; I will enumerate them for you and you tell me if I am not correct: The first, not necessarily in order of importance but first in sequence, is that you knew that the Shell Oil Company manufactured an asphalt emulsion, and you thought that was a likely outlet for your Core-Min-Oil; is that right? A. That is right.

Q. The second was that you knew Floyd McSwain, manager of the asphalt department; is that right? A. Yes.

Q. And the third was that you wanted to secure the assistance of the Shell Oil Company in helping you solve this difficulty you were encountering in the softening of the cores; is that right?

A. That is right. [153]

Q. Those were the three major reasons why you went there? A. That is right.

Q. Do you know what the usual and accepted ratio of sand to oil is when foundries are making cores with linseed oil?

A. Well, they run as high as one part of oil up to eighty parts of sand.

Q. That would be one of oil to eighty of sand?

A. That is right. The Kingwell Foundry that uses Quandt Oil uses one to fifty parts of sand.

Q. What is the ratio of sand to oil used by you in the making of cores with Core-Min-Oil?

(Testimony of Allan B. Ruddle.)

A. It is—I can give you that formula; it is 1750 cc's of sand and 80 cc's of asphalt emulsion and 50—

Q. How many parts of sand would you use to how many parts of oil when using the Core-Min-Oil? Is 1 to 17½ about right?

A. Yes, something like that.

Q. One to 20?

A. Well, yes, that would be right.

Q. Never over 1 to 20?

A. No, I wouldn't think so.

Q. Probably less?

A. Well, it would depend on what you had to make. If you had to make a core that didn't require so much strength, it would be 1 to 20.

Q. That is a fair range, Mr. Ruddle?

A. Yes, that is right.

Q. Can we say that you would use one part of More-Min-Oil to 15 to 20 parts of sand?

A. That would be right, I guess.

Q. In other words, if we take the highest ratio given by you, it would take approximately four times as much Core-Min-Oil to mix with a given batch of sand as it would with linseed oil when they were using the ratio of 1 to 20?

A. Yes; I would think an average of 3 to 1 is what we figured.

Q. Three to one would be a fair average?

A. Yes, I would say [154] so.

Q. In other words, the foundry would have to buy three times as much Core-Min-Oil to get the

(Testimony of Allan B. Ruddie.)

same beneficial results that he would with one part of linseed oil?

A. That is right. I think linseed, though, is used also from 1 to 50; it depends on the work that they are doing.

Q. You figured roughly 3 to 1 is a good average?

A. That would be about an average, I would say.

Q. You have mentioned something in your direct testimony about an allegedly new product that Mr. McSwain mentioned the Shell Company had developed, or that they had in the way of core oils, and I believe you identified that allegedly new product as an albino linseed, is that it?

A. An albino asphalt.

Q. Albino asphalt?

A. Yes, together with a mix of linseed oil, some kind of a mix of linseed; it wasn't pure linseed, as I understood him to say.

Q. In other words, they take this albino asphalt and mix it with the linseed oil; is that your understanding?

A. That is what he told me that day.

Q. I am not quite sure of your testimony in this regard, and it isn't clear to me; but did I understand you to say or to intimate that the Shell Company refused to disclose the formula for making this albino linseed core oil? A. We—

Mr. Hackley: Do you mean albino asphalt?

(Testimony of Allan B. Ruddle.)

Mr. Aurich: Albino asphalt, whatever you want to call it; I will accept your terminology.

A. Well, I understood they refused; I didn't ask them for it.

Q. You understood they refused?

A. Yes, we asked for reports all the time, which we didn't get.

Q. You never got them?

A. No; we got the two reports, and [155] that is all we got until after the complaint—I mean this letter from Mr. McLaren came.

Q. Do you know when they developed this albino asphalt oil?

A. It was just prior to the McLaren letter; that is the time that McSwain told me.

Q. That would be July 1939?

A. Yes, I would say something like that.

Q. Did the Shell Company ever tell you what ingredients were in the albino asphalt oil?

A. No, they did not.

Q. They never told you anything about it?

A. No, only McSwain said one time that the asphalt was some asphalt that had been manufactured in Holland, or something like that, something that they tried.

Q. Mr. Ruddle, as a matter of fact, didn't the Shell Oil Company disclose to your counsel orally and generally the nature of albino asphalt oil that you referred to, and wasn't that conversation subsequently followed up by the Shell Company writing a letter in which they set forth with great de-

(Testimony of Allan B. Ruddle.)

tail the ingredients used in making this albino asphalt, and the method by which it was made?

A. Not to my knowledge.

Q. Don't you recall that some discussions were had at the time or around the time of the cancellation about this albino asphalt, and Shell kept insisting that it had nothing to do with anything that you had disclosed to them and that it was entirely different; and that those discussions resulted in your taking the position: "Well, how can we tell whether it is different or whether it is the same or whether you have taken anything from me until we know what is contained in it"? Don't you recall anything like that? A. No, I don't.

Q. And don't you recall that Shell acquiesced in the wisdom [156] of your position and said, "Well, that's right; here is the formula we use. Here are the ingredients we use. Now you can take it and submit it to anybody you want and get their opinion on it."? You don't recall anything like that? A. I do not.

Mr. Aurich: Mr. Hackley, you will admit that the original of this letter was received (showing letter to counsel)?

Mr. Hackley: That letter was received by me as a matter of fact on behalf of Mr. Ruddle and of Mr. Peck.

Mr. Aurich: Yes, that is right.

Mr. Hackley: You may offer the copy, if you like, without any further identification.

(Testimony of Allan B. Ruddle.)

Mr. Aurich: Q. I now show you a copy of a letter dated November 30, 1939, which is admitted to be a copy, the original of which was received by your counsel, Mr. Hackley, and ask you to look at it, please, and read it over and see if you ever saw that before (handing document to witness).

A. I don't recall ever seeing this letter before.

Q. And you were never advised that the Shell Oil Company had told your counsel what the ingredients were that were used in making the albino asphalt oil referred to by you and the formula?

A. No, I don't recall that at all.

Q. You didn't know anything about it until I showed it to you here today; is that right?

A. That is true.

Mr. Aurich: I now ask that the letter be received in evidence as Defendants' Exhibit Y, being a copy of a letter dated November 30, 1939, from Shell Oil to Mr. Hackley.

Mr. Hackley: I have no objection to the form, but I object to the offer on the ground that it is irrelevant and immaterial to any issue in this case for the reason that the letter was [157] admittedly sent and received after the filing of this action.

The Court: Let it be admitted and marked.

(The letter referred to was marked Defendants' Exhibit Y in evidence.)

Mr. Hackley: Mr. Aurich, for your information, if it will be helpful to you, I can say that I

(Testimony of Allan B. Ruddie.)

personally received that letter and referred it to Mr. Peck, not to Mr. Ruddie.

Mr. Aurich: Thank you.

Q. Now, when you took your Core-Min-Oil to the Shell Oil Company and discussed the matter with Mr. McSwain, did you tell him anything about the difficulties you had been experiencing with your Core-Min-Oil? A. Yes.

Q. Will you tell me what you told him in that regard, please?

A. Well, I told the Shell Oil Company we were having trouble with this softening in the ovens.

Q. Yes.

A. That was afterward determined to be due to gas; and we also told them that we were having trouble with the material drying on the benches badly; that we were able—if we kept wet sacks on it, why, we could use it on the benches, or if we put it in a container. And I described the chute that was made at the Kingwell Foundry where they put the material in on the outside and it came down and opened up on the benches, and if used that way it would eliminate the fast drying time on the benches.

Q. Anything else?

A. Well, they were the principal things that I recall now.

Q. Well, let me put it to you this way: Are those the principal things that you recall, or are those the only things you recall now?

(Testimony of Allan B. Ruddle.)

A. Well, those are the only things that I can recall right now. [158]

Q. In other words, you told Mr. McSwain, "I have got a pretty good core oil here. It seems to have tremendous possibilities, but I am having a little difficulty. First, I am having difficulty because on occasions some of the cores are soft while others are hard. That I can't seem to overcome and I don't know what causes it. And I am also having a little difficulty because the sand has a tendency to dry fast on the bench, but I can overcome this by placing wet sacks over the sand or keeping it in airtight container."? Is that about right? A. That is about right.

Q. On page 48 of your testimony yesterday, Mr. Ruddle, you mentioned something about some other minor difficulties that were going to be corrected. I think that is your testimony. Can you tell me what the other minor things that were going to be corrected were that you mentioned to Mr. McSwain?

A. I can't recall them at this time.

Q. You can't recall any at this time?

A. No.

Q. Do you recall at this time whether there were any or not?

A. No, I can't. There might have been.

Q. And there might not? A. Yes.

Q. Now, also yesterday you mentioned something in your testimony—I don't have the exact page—about the fact that you turned over every-

(Testimony of Allan B. Ruddle.)

thing that you had been able to learn with reference to core-making, et cetera, to Shell. Do you recall that testimony particularly?

A. Yes, that is right.

Q. Did you mean by that to testify that you had turned over to the Shell Company all your notes relating to the art or subject of core-making?

A. Well, everything that seemed important [159] that I—everything that I knew that would aid them in any way I turned over to them.

Q. Well, did you turn over to the Shell Company all of your notes that you had made at the time that you entered into this contract?

A. Well, as I recall, I did. I don't find them; I don't know; maybe they are still there.

Q. Don't you recall testifying at your deposition that at the time you entered into the contract with Shell you thought everything was all right and you destroyed your notes?

A. I said I might have.

Q. You think you said you might have?

A. Yes. [160]

Q. When was the first conversation you had with Mr. McSwain when the alleged probable size of the core oil market was discussed?

A. Well, I would say that it was within the very first meetings that I had with him.

Q. That would be in the fore part of, let us say, January, 1938?

A. Yes, I would say that would be about the time.

(Testimony of Allan B. Ruddle.)

Q. Who first brought up the subject of the probable size of the core oil market, you or Mr. McSwain?

A. Well, maybe I did; I wouldn't know.

Q. Did Mr. McSwain at that time tell you that the Shell Oil Company had looked into the market of core oils, and that the market of core oils was in the neighborhood of 23,000,000 gallons per year?

A. No, I don't know that he did at that time.

Q. Did he tell you that during your first negotiations, or during the months of January or February, 1938?

A. It might have been as late as February in 1938.

Q. Did he tell you that in February of 1938—and by that, I mean, did he tell you any time prior to the signing of the contract here in evidence—that the Shell Oil Company had made an investigation of the probable core oil market in the United States, and found that that market was approximately 23,000,000 gallons a year?

A. I won't attempt to fix the time when he first told me that.

Q. Can you say whether or not he told you that prior to the signing of the contract or after the signing of the contract?

A. Well, it might have been after the signing of the contract. [161]

Q. Are you sure?

A. I wouldn't be sure.

Q. Now, at those early conversations that you

(Testimony of Allan B. Ruddie.)

had with Mr. McSwain in January or February, 1938, he told you that the Shell Oil Company had never been in the core oil business, is that right?

A. That is what he told me.

Q. And he told you either in your very first, or among the very first meetings, that he personally knew nothing about core oils, is that right?

A. That is right.

Q. When you met Mr. McSwain on Market Street, as you have testified, and mentioned the subject of core oils to him, what was his immediate response?

A. Well, he was interested.

Q. He was interested without knowing what a core oil was?

A. Well, he said that his company would be interested in any product of theirs that there would be a new market for—any product.

Q. Did he ask you, "What is a core oil?" Didn't he ask you that question?

A. Well, it is possible that he did.

Q. You have no recollection of that?

A. Well, as I remember, I told him—and I told him that we had—that I had discovered a new use for asphalt, and that I wanted to know if his company would be interested in it. And he said that his company was interested in anything in the way of their products, where there was a new sale for them.

Q. Following that conversation, or subsequent to what you have just told us, did you tell Mr. Mc-

(Testimony of Allan B. Ruddle.)

Swain that your new market for asphalt, or asphalt emulsion, which ever the case may be, was in the use of a core oil?

A. Well, yes, I think it was at the first meeting, but I won't recall—I remember when I first told him about what it was, an asphalt emulsion.

Q. As a matter of fact, the situation was this, wasn't it, Mr. [162] Ruddle: that you told Mr. McSwain that you had a new market for asphalt emulsion; that that new market was in the field of core oils, and Mr. McSwain either asked you, "What do you mean by core oils?" And you explained to him, or you explained it to him without his asking you, is that right?

A. That is possible, yes.

Q. Mr. McSwain did not know what a core oil was before you met him, did he?

A. No, he did not.

Q. Instead of Mr. McSwain telling you the probable market of core oils for linseed oil, isn't it a fact that you told him that the probable market of core oils, for linseed oil, was approximately 23,000,000 gallons per year, and didn't you tell him that in order to interest him and the Shell Oil Company in taking and participating with you in your core oil project?

Mr. Hackley: This is before the contract?

Mr. Aurich: Before the contract was signed.

A. Yes, as I understand, this is the first meeting or two you are referring to.

(Testimony of Allan B. Ruddie.)

Q. Either the first, second or third—any meeting you want to place.

A. Yes, I guess that is probably true, that I told him.

Q. And didn't you tell Mr. McSwain at one of those early meetings that you had with him that it took three times as much Core-Min-Oil to make a given batch—to mix with a given batch of sand—as linseed oil, and that therefore you would sell three times the amount of linseed oil that was then being sold?

A. Well, that is what we had in mind. I suppose I did tell him at that time.

Q. Well, do you have any recollection now whether you did or did not tell him that?

A. No, I have not.

Q. You spoke about a letter that you received from "The Foundry," [163] the other day. Do you recall that?

A. Yes; I remember turning that letter over to Mr. McSwain.

Q. And you did not say anything to him when you turned that letter over to him? You just said, "Here is a letter," and that is that?

A. Yes. We not only had that letter; we had other pamphlets from the Government—I think the Department of Commerce.

Q. What I am driving at is this: Mr. McSwain knew nothing about how much Core-Min-Oil could be sold in comparison with linseed oil during your early conversations with him, did he?

(Testimony of Allan B. Ruddie.)

A. No, I don't think he did.

Q. The only knowledge he could have obtained outside of surveys he might have made, would have been from you or from Peck, isn't that right?

A. I guess that is right.

Q. Will you just answer this question directly, please: At any time prior to the signing of the contract on April 8, 1938, did you tell him that you had made a survey, or had had an investigation made, or words to that effect, and that you had discovered that there was 23,000,000-odd gallons of linseed oil sold for core oil purposes in the United States; that you would sell three times as much Core-Min-Oil as linseed oil; and that therefore there was a probable market of some 69,000,000 gallons of Core-Min-Oil?

A. That is possible, that I did.

Q. Did you tell Mr. McSwain at any of these early conversations that you contemplated that your oil was of sufficient quality that you expected that it would supersede all core oils on the market, to a large extent?

A. I don't know that I said "all core oils." We were talking about the linseed oil market; that was the only one we had any figures on.

Q. Did you tell Mr. McSwain that you contemplated that your Core-Min-Oil was of sufficient quality that you expected it would [164] supersede all the linseed oil that was then on the market?

A. No, I don't know that I made that statement.

(Testimony of Allan B. Ruddle.)

Q. You were not trying to sell Mr. McSwain the idea of becoming interested in your Core-Min-Oil at all, were you? A. I certainly was.

Q. You were not trying to tell him what a market there was for it, were you?

A. It is possible I told him, but I don't recall now what I told him.

Q. As a matter of fact, before you ever went to Mr. McSwain and ever went to the Stell Oil Company, you had determined, to your satisfaction, at least, and to the satisfaction of Mr. Lydell Peck, what, in your opinion, you considered to be the probable market for your Core-Min-Oil, is that right?

A. That is right; that is right.

Q. What was the probable market that you and Mr. Peck had considered was there for your Core-Min-Oil before you went to Shell?

A. That was based upon that "Foundry" letter and the pamphlets that we got from the government regarding the amount of core oils that were used.

Q. Can you tell me how many gallons of Core-Min-Oil you considered there was a probable market for, which conclusion had been arrived at by you prior to the time you went to Shell?

A. About 70,000,000 gallons a year.

Q. 70,000,000 gallons a year? A. Yes.

Q. Now, how did you arrive at that figure of 70,000,000 gallons a year?

A. Well, we figured that there was about 23,-

(Testimony of Allan B. Ruddie.)

000,000 gallons or more of linseed oil, and that we would use three times as much in Core-Min-Oil, and that was how we arrived at that figure.

Q. And it is quite possible you passed those figures on to Mr. [165] McSwain?

A. Well, I know that we sent a "Foundry" letter we had—that was one of our guiding methods—over to the Shell Company.

Q. I am speaking of the 69,000,000 or 70,000,000 gallon figure.

A. Well, that was Core-Min-Oil, and the letter we sent was on linseed.

Q. The point is, it is quite likely that you advised Mr. McSwain of what you considered to be the probable market for Core-Min-Oil, based upon the figures that you just testified to?

A. Yes, that would be probably right.

Q. Now, you have testified here that you have arrived at the alleged fact that you have been damaged in excess of \$100,000 because Mr. McSwain advised you that the market for core oils in the United States was 60,000 gallons a year, and that it was reasonable to expect that your Core-Min-Oil would take, conservatively, 10 per cent of the market, is that your testimony?

A. 60,000,000 gallons a year.

Q. 60,000,000 gallons a year; I am sorry.

A. Yes, that is right.

Q. You are quite sure of that fact, are you, Mr. Ruddie?

A. Yes, sir.

Q. No doubt in your mind about it?

(Testimony of Allan B. Ruddle.)

A. No. I remember that conversation with McSwain where we were discussing the probable amount that should come out of the sale of Core-Min-Oil.

Q. You are quite sure that this conversation that you are referring to with Mr. McSwain, the substance of which I have related in one of my preceding questions, is the basis for your statement in your complaint that you have been damaged in the minimum amount of \$100,000, is that right? A. That is right.

Q. As a matter of fact, Mr. Ruddle, that figure of \$100,000 which [166] is set forth in your complaint is an arbitrary figure set down by you and is based solely and only on the hope and expectation that, assuming there was 23,000,000 gallons of linseed oil sold per year, you would be able to sell approximately 69,000,000 gallons per year, is that correct?

A. I wouldn't need to sell it?

A. You mean the Shell Oil Company would sell that much?

Mr. Aurich: Q. I do not mean the Shell Oil Company at all. I mean anybody that sold your product.

A. Yes; that is what we would expect them to sell, or more.

Q. Are the figures stated in my question correct or incorrect?

A. Yes, they are correct.

(Testimony of Allan B. Ruddle.)

Q. Your statement in your complaint that you have been damaged in the sum of \$100,000, then, is not based entirely on what Mr. McSwain told you, is it?

A. Yes, that was one of the outstanding things that was in my mind when we talked about it.

Q. When did you come to the conclusion the fact that you have been damaged in the amount of \$100,000, or in excess of \$100,000, was due to this statement of Mr. McSwain's, that they would sell 60,000,000 gallons a year?

A. That was only one of the elements of it. We knew the size of the market.

Q. Who is "we"?

A. Well, Mr. Peck and myself.

Q. You knew that before you went to Shell?

A. We knew that, and we also knew it after we went to Shell Oil Company. Mr. McSwain said that he had an independent search made, and that our figures were not out of line. [167]

Mr. Aurich: Q. Was that always in your mind, Mr. Ruddle?

A. Yes, we always discussed that, a number of times, Lydell Peck and myself.

Q. That is not a matter that has come to you as an afterthought, is it? A. No, sir.

Q. I will call your attention to your deposition, which was taken less than a month ago, on November 10, 1941, commencing on line 20 of page 226, in which substantially the identical question that was asked you yesterday by your coun-

(Testimony of Allan B. Ruddle.)

sel was asked you by me. The testimony reads:

“Q. In paragraph 24 of your complaint, verified by you, page 11, lines 24 to 26, you allege that you have been damaged and injured in an amount in excess of \$100,000. Will you tell me how you arrived at the amount of said alleged damage as therein set forth?

“A. That was an arbitrary figure that we placed in there.

“Q. Who is ‘we’?

“A. Mr. Peck and myself. Mr. Hackley, who we discussed that with—he told us that that figure didn’t mean anything; that if the amount we could show we were damaged was a million dollars, that figure would not be limited to \$100,000.

“Q. Let me put it this way: Do you figure you have been damaged at least in the amount of \$100,000?

“A. Yes, I think many times as much.

“Q. How did you arrive at that figure?

“A. Well, we, with the Shell Oil Company, and even prior to the Shell Oil Company entering into it, we determined the size of the linseed oil market.

“Q. What was that size?

“A. It was 23,000,000 gallons a year. [168]

“Q. That is, the 23,000,000 gallons per year of linseed oil was sold for foundry use?

“A. Yes.

“Q. How did you get that information?

(Testimony of Allan B. Ruddle.)

“A. We had that in a letter from the magazine called ‘Foundry’.

“Q. I show you what purports to be a copy of a letter from ‘The Foundry,’ dated November 26, 1937, addressed to Mr. Peck, that your counsel, Mr. Hackley, offered in evidence as Plaintiff’s Exhibit 2 in the taking of the deposition of Mr. McSwain, and ask you to state if that is the letter to which you have reference?

“A. Yes, that is the letter I refer to.

“Q. That latter is dated November 26, 1937.

“A. Yes, that is right.

“Q. That is before your first conversation with Shell relative to the core oil?

“A. That is right.

“Q. Now, assuming that the information stated in that letter is correct, in that there are 23,000,000 gallons of linseed oil sold to foundries for core oils, how did you arrive at the figure you were damaged in the extent of at least \$100,000?

“A. Well, we would do approximately three times as much.

“Q. That would be 69,000,000 gallons each year? A. Yes, that would be.

“Q. How did you arrive at the figure that that would be 69,000,000 gallons per year of your Core-Min-Oil, and by 69,000,000 gallons you mean 69,000,000 gallons of Core-Min-Oil, and not the Ruddle Solution alone?

“A. No; that would be together.

(Testimony of Allan B. Ruddie.)

“Q. The combined Ruddie Solution and asphalt emulsion together?

“A. Yes, I think so. [169]

“Q. How did you arrive at the figure, then, of 69,000,000 gallons per year that you would sell?

“A. Well, in our talks with the Shell Oil Company, we talked figures of 10,000,000 gallons a year, of 20,000,000 gallons a year, and they estimated, when they talked to us about it, that they could sell at least 50 percent of the foundries, 50 percent of that amount. We talked those figures. It is an estimate.

“Q. Irrespective of what Shell may or may not have done, or what Shell may or may not have told you, how did you arrive at the figure of 69,000,000 gallons per year as representing the amount of Core-Min-Oil that could be sold?

“A. Other than this letter?

“Q. No; I am trying to figure out how you figured you could sell three times the amount of the total gallonage of linseed oil that was sold?

“A. I said if we supplanted the linseed oil market, it would require 69,000,000 gallons of Core-Min-Oil.

“Q. What was there in the course of events that made you believe you would supplant the entire linseed oil market in the core oil field?

“A. Well, we never figured we could sup-

(Testimony of Allan B. Ruddle.)

plant it, but we figured about 50 percent of the market.

“Q. In other words, you merely hoped that you would be able to supply at least 50 percent of the market with core oil that was then using linseed oil? A. That is right.

“Q. It was your hopes and expectations, rather than anything else?

“A. [170] That is right.

“Q. You had no factors upon which that was predicated?

“A. No, just our opinion, our judgment in the matter.

“Q. By ‘our judgment,’ whose judgment do you mean?

“A. I mean Mr. Lydell Peck, myself, Mr. James F. Peck, who was alive at that time.”

Q. I will show you the portion I read, and you are at liberty to read that and all other portions you desire. A. Yes, I recall it.

Q. Those questions were asked of you and you gave those answers, did you not?

Mr. Hackley: May I give the record to the witness so he may read the whole dissertation? I believe he should read all of it.

Mr. Aurich: He may read the entire deposition if he wants to, Mr. Hackley.

Mr. Hackley: I thought he might want to read the rest of the same subject. It appears on pages 229 and 230.

(Testimony of Allan B. Ruddle.)

Mr. Aurich: Q. After you have read that, my question, Mr. Ruddle, is: Were those questions asked you and did you give those answers?

Mr. Hackley: I will stipulate that those questions were asked and he answered them in the manner which you read, Mr. Aurich.

Mr. Aurich: Thank you.

Q. Prior to your going to the Shell companies with your core oil, did you ever make an investigation, or study, or survey, to determine the amount of core oils that were being sold on the market, other than this letter from "The Foundry," to which you have referred?

A. Yes, we had some pamphlets that we got from the Government. They were only loaned to us, and we had to return them. [171] But I sent them over to the Shell Oil Company—we had them that long—and Mr. Waller returned them to us.

Q. What else did you do in connection with such an investigation, or study, or survey?

A. Well, we tried to determine the amount of Core-Min-Oil that was used in Chrysler's plant.

Q. Of Core-Min-Oil?

A. No; linseed oil, I think—or I have forgotten what the oil was that they used. I think it was linseed oil that they used in Chrysler's at the time.

Q. Did you find out?

A. Yes; I think we did, but I think I turned that over to Mr. Waller.

Q. When was that survey made, or investigation, regarding the Chrysler plant?

(Testimony of Allan B. Ruddie.)

A. Well, it was along about the time that the Shell Company had signed the contract, somewhere in there; I don't know just when.

Q. Prior to the signing of the contract?

A. I would say maybe after signing the contract.

Q. Do you recall what the figures were?

A. No. As I recall, they were about four or five million gallons used a year there.

Q. By Chrysler? A. Yes.

Q. Linseed oil, for core oil purposes?

A. That is what I think the survey showed, but I don't remember now just how we got it.

Q. Do you remember where you got that information from?

A. No, I do not; I couldn't tell you.

Q. Outside of the letter or report from Chrysler that you have referred to, outside of the letter from "The Foundry," and outside of these Government publications, did you make any other investigation or study, or survey, to determine the amount of core oils that were then being sold on the market?

A. No; Mr. McSwain told me that the Shell Company had made one. [172]

Q. I am speaking of prior to your going to Shell. A. No.

Q. Prior to your going to Shell Oil Company did you ever have anyone make such a survey or study for you?

A. No, none other than I have related.

(Testimony of Allan B. Ruddle.)

Q. I am excluding from my next questions those subjects you have already referred to. Do you know whether anyone, prior to your going to shell, and in connection with your core oil, Mr. Ruddle, ever made any survey, or study, or investigation, to determine the amount of core oils that were on the market?

A. No, I do not.

Q. No one ever reported to you the results of any such survey or investigation or study?

A. As to the amount of all core oils that were sold?

Q. Limit it to linseed, if you prefer.

A. No, I don't recall any others that I have related to you.

Q. No one ever reported anything to you about that fact?

A. No.

Q. Do you know whether or not the American Bitumuls Co. ever made an attempt to ascertain the probable size of the core oil market?

A. Not that I recall now. It is possible that they did, but I wouldn't recall.

Q. Weren't you advised by the American Bitumuls Co. that they had made a preliminary survey of the core oil market, and that at the outside the entire core oil market in the United States would not exceed 10,000,000 gallons per year, which was an extremely generous estimate?

A. No, I do not remember that.

Q. You were never advised of that fact?

A. No, I don't think I ever saw that.

(Testimony of Allan B. Ruddie.)

Q. You never saw a report that the American Bitumuls Co. sent you containing information substantially as I have stated it here?

A. No, I don't recall it. [173]

Q. Did you ever see a report from the American Bitumuls Co. to the effect that the introduction of a new core oil into the foundry field would be a most difficult undertaking, irrespective of the merits of the core oil?

A. No, I don't know that.

Q. I didn't ask you whether you knew it; I asked you whether you ever received a report from the American Bitumuls Co. which so stated.

A. I know I don't recall any such report. I know the American Bitumuls Co. offered us a contract.

Q. You have no knowledge of any report like that?

A. No, I have not.

Q. You never at any time disclosed to the American Bitumuls Co. the full composition of your Core-Min-Oil, did you?

A. No, I did not.

Q. Did you ever make a survey or investigation yourself, or have one made for you, to determine what market, if any, there was for a sodium silicate base core oil such as Core-Min-Oil?

A. No, I did not.

Q. Before you could use your Core-Min-Oil in any commercial foundry, it would first be necessary for them to rebuild or remodel their furnaces and change them from direct-fired ovens to indirect-

(Testimony of Allan B. Ruddle.)

fired ovens, assuming they were using direct-fired ovens, isn't that correct?

A. They would have to fix it so the gas would not come in contact with the cores.

Q. To do that they would either have to rebuild or remodel their ovens to change them from direct to indirect, is that right?

A. Or line their ovens with tin, would do it.

Q. Or lining their ovens with tin?

A. Yes.

Q. And having flue gases going out between the tin and the outer walls?

A. Yes, that is right.

Q. What would you do for exchange of heat?

A. What do you [174] mean by "exchange of heat"?

Q. How would you get sufficient heat in the oven?

A. Well, there might be a little loss of heat; I don't know how much.

Q. You do not know whether it would be sufficient to necessitate the placing of heat exchanges in there, do you?

A. No.

Q. At any event, if a foundry had a direct-fired oven today, it would not be able to use your Core-Min-Oil unless it made some alterations of some character in its furnace, is that right?

A. Yes; they would have to have something, either put a cap over the cores to keep the gas away from it, or they would have to fix the oven so the gases could not come in.

Q. Did you say put a "cap" over the cores?

(Testimony of Allan B. Ruddle.)

A. Yes; put a hood over the cores.

Q. Is that a practical operation?

A. Well, it would be, I would think.

Q. In commercial foundry operations?

A. Well, I don't know whether or not that would be the way to fix it, but it is possible to do that.

Q. And you think that that would be a successful, practical, commercial foundry operation, to have a series of hoods for each shape of core that you cared to make, and have the core maker take the time, after the core was made, to place the hood over the core, take it, put it in the oven, have it come out of the oven, and the problem of removing it?

A. Well, if they didn't make little shelves—that is, so that they could isolate the gas from the cores by fixing—most of these foundries have little shelves where they put the thing in. They could fix those so the gas could not get out.

Q. Do you think it would be a practical commercial operation for a [175] foundry—in conducting a foundry, to hood the cores as I have described?

A. I don't know anything about that.

Q. You do not know anything about it?

A. No, I wouldn't know.

Q. What would you do with the steam that was generated within the cores?

A. That goes out the top. If you put a little hole

(Testimony of Allan B. Ruddle.)

in the top of the hood, why, the steam would pass out of the top of the hood.

Q. Do you think you would have any trouble getting sufficient heat to the core?

A. We have tried it with hundreds of them and we didn't have.

Q. No trouble at all?

A. No; they bake just as fast under that hood as they do outside of the hood.

Q. Is it your testimony in that regard, Mr. Ruddle, that you made cores in a furnace, in an oven, a direct-fired oven, and had cores therein which were hooded, and that you got equally satisfactory results as you did when you baked cores in an oven which was free from the CO₂ gases, such as an electric oven?

A. Yes, as near as I could tell there wasn't any difference in the time.

Q. And that was universally true?

A. Yes, it was.

Q. Irrespective of the type of hood used?

A. Well, we just used a cut-up tin, five-gallon can, and set that over it. Now, it is necessary to put sand around the bottom of that hood to keep the gas out, and then just one or two small holes on top of the can that lets the steam out.

Q. Where did all this take place?

A. It took place at the Macauley—I mean, the Vulcan Foundry.

Q. Who did it?

(Testimony of Allan B. Ruddie.)

A. Well, I put many a hood on myself, when we were at the Vulcan Foundry, when Mr. Spotswood was there, and Mr. Waller was there.

Q. Over what period of time?

A. Well, it went over [176] several months that they were there at the Vulcan Foundry.

Q. I am going to be a little more exacting in the question of time, Mr. Ruddie, than your counsel was. You told me this morning, I believe, that you do not recall anything that Mr. Spotswood ever did at the Vulcan Foundry prior to the signing of the contract on April 8, is that right?

A. Yes. Well now——

Q. Is that still your testimony?

A. Yes, that is right.

Q. Therefore, we can start out with the premise that prior to April 8, 1938, Mr. Spotswood did not make any cores at the Vulcan Foundry in which the cores were either hooded or not hooded, is that right? A. That is right.

Q. When Mr. Spotswood came to work at the Vulcan Foundry following the signing of the contract of April 8, just how much work did you have to do there?

A. Me? Why, I didn't do very much of anything. I mixed a lot of the core sand, and the core maker, Manuel, would make the cores, and we would take them, put them in the oven, and we would put a hood on them, and there they were cooked.

(Testimony of, Allan B. Ruddie.)

Q. As a matter of fact, after the signing of the contract of April 8, the bulk of the work done at the Vulcan Foundry was done there by Mr. Spotswood or the core maker, is that right?

A. That is right.

Q. Practically, the work was under Mr. Spotswood's direction, was it? A. That is right.

Q. The Shell Oil Company was at that time of the opinion that they had a good, marketable core oil; that Mr. Spotswood went to the Vulcan Foundry for the purpose of getting comparative sales data for sales promotion work; do you know that?

A. Yes.

Q. And therefore he was doing the work and you were acting, really, as an observer. Is that fairly accurate?

A. That is true; [177] that is true.

Q. And you were not there every day?

A. No; I went there several times a week; probably once or twice a week. I went with Mr. Waller.

Q. You practically ceased working at the Vulcan Foundry after Mr. Spotswood took the work over?

A. Well, he took the work over, but I went out with Mr. Waller and watched it every day or two.

Q. For how long?

A. Well, it was kept up to the time of the Spotswood application for patent—went in.

Q. You were present at Mr. Waller's deposition the other day? A. Yes.

(Testimony of Allan B. Ruddie.)

Q. You heard him say he left that work on core oil sometime in the middle of June, 1938?

A. Well, after he left I went over with Mr. Lydell Peck, and I went over with Mr. Floyd McSwain a great many times.

Q. Let us divide this up in some periods of time here and see if we can arrive at some conclusion. The first interval of time that Vulcan was occupied by you and Mr. Waller. I am speaking now of the time that you first brought your Core-Min-Oil to Shell, up to the signing of the contract.

A. Yes.

Q. Is that correct? A. Yes.

Q. During that period of time you were doing the work and Mr. Waller was observing, is that right?

A. Well, yes; I would take the material there—that is, the solution I made up—and the core maker, Manuel, would make the cores.

Q. I will put it another way, then. I did not mean to mislead you there. The work at the Vulcan Foundry, between the time you first went to Shell and the time of the signing of the contract, was done at the Vulcan Foundry either by you or under your supervision and [178] direction, and Mr. Waller was merely observing, is that right?

A. That is right. [178-A]

Q. Now let us confine ourselves for the moment to just that period of time. Did you make any cores in a direct-fired oven at the Vulcan during that period of time, which were hooded? A. Yes.

(Testimony of Allan B. Ruddie.)

Q. When did you first commence to do that?

A. Well, it was during the time that I would take the stuff—I mean the material—to the Vulcan and Manuel would make the cores. After Mr. Spotswood had determined what was hurting the cores, then we put the hoods on them.

Q. In other words, after Mr. Spotswood had discovered that it was the presence of carbon dioxide gas in the oven, you commenced to continue to make cores at the Vulcan Foundry, and in an endeavor to overcome this difficulty you started using hoods for your cores?

A. Yes, we did use hoods there at the Vulcan Foundry.

Q. And during that period of time now, which we can fix as the latter part of February 1938, because that is the approximate time when Mr. Spotswood discovered this difficulty, and the date of the signing of the contract, every core made by you in the Vulcan Foundry in a direct-fired oven with a hood placed over the fire was a satisfactory core?

A. Yes, every one that I saw.

Q. Now let us take the next period of time, between the signing of the contract and the middle of June 1938 when Mr. Waller went out of the picture. Is it your testimony that during all of that period of time each and every core made by you with Core-Min-Oil and that was placed in the direct fire ovens at Vulcan and hooded was a good, satisfactory core?

A. Every one that I saw, yes.

(Testimony of Allan B. Ruddie.)

Q. Now, what happened after June? Did that continue on? [179]

A. Well, I think Mr. Spotswood was doing the work at Martinez at that time and down at the Vulcan Foundry.

Q. I am speaking now about work that you observed at the Vulcan Foundry.

A. I don't recall just what I saw at the Vulcan Foundry after that date, but I went there a number of times to see what was going on. It seemed to me that Mr. Spotswood was making cores in the electric oven principally at that time.

Q. After June 1938? A. Yes.

Q. Did you ever make any investigation or survey to determine the number of foundries in the United States that were using direct-fired ovens as compared with those using indirect-fired ovens?

A. No, but I understand that it is small in comparison with the open ovens. There is a lot of ovens heated by electricity, I understand.

Q. There are a lot?

A. Yes, I understand there is a lot.

Q. Have you any idea of the percentage as compared to the total number of direct-fired ovens?

A. No, I have not.

Q. It is very small, isn't it?

A. I would say it is small compared to the open-fired ovens.

Q. In arriving at your conclusion that you could sell 69,000,000 gallons of Core-Min-Oil a year did

(Testimony of Allan B. Ruddle.)

you take into consideration the fact that before your core oil could be used in such foundries as had direct-fired ovens, it would be necessary for you to remodel or rebuild the ovens in some manner to overcome the gas fumes?

A. Yes, that would have to be done in some manner.

Q. That was taken into consideration by you in arriving at the figure of 69,000,000 gallons of Core-Min-Oil that could be sold?

A. That is right. [180]

Q. Now, you mentioned something about a difficulty that you experienced before going with Shell, which was the fast air drying of the bonded sand on the bench; is that right?

A. Well, that was a difficulty until we found out that we could keep the material in a closed container, and when it was on the bench, to keep wet sacks over it.

* Q. You were of the opinion, then, that that difficulty really had been overcome by the time you went to Shell and that all you had to do was to either keep the sand in containers that were airtight, or keep it covered with wet sacks; is that right?

A. That is right. This material dries—hardens by evaporation.

Q. It dries very rapidly, doesn't it?

A. Yes, it does, if you keep it exposed to the air.

Q. Do you know what the general practice in foundries is throughout the United States with respect to the method of keeping this bonded sand,

(Testimony of Allan B. Ruddie.)

that is, sand that has been mixed with the core oil?

A. No, I don't.

Q. Was the fact that before your core sand could be used it had to be stored in special airtight containers or kept under damp, wet sacks a matter that was taken into consideration by you in arriving at the figure 69,000,000 gallons per year which you hoped and expected you would sell?

A. Yes, that was.

Q. Now, we have mentioned something about selling this Core-Min-Oil in two packages, I think you said. By that you simply mean that if a large foundry, which used a tremendous number of gallons of core oil,—say Chrysler—wanted to buy your Core-Min-Oil, he would have to buy one tank car of your asphalt emulsion and another tank car of your solution; is that right?

A. That is right. [181]

Q. Whereas, if he wanted to buy linseed oil, he could buy one tank car; is that right?

A. That is right.

Q. Now, if we start out with the assumption that a tank car will contain 10,000 gallons of linseed oil, and the Chrysler people wanted to buy an amount of Core-Min-Oil that would give them the equivalent of 10,000 gallons of linseed oil, how many tank cars would they have to have?

A. They would have to have three tank cars.

Q. Three?

A. About three times as much, we figured.

(Testimony of Allan B. Ruddie.)

Q. That would be three times as much. In other words, they would have to have facilities for storing three times as much? A. That is right.

Q. They would have to have facilities for pumping three times as much from the tank cars to the place of storage? A. That is right.

Q. They would have to have facilities for pumping three times as much from the place of storage to the place it was to be used? A. Certainly.

Q. And they would have to have different containers too, wouldn't they?

A. They would have to have two sets of containers if they had them in two packages.

Q. Did you ever give that matter any consideration when you arrived at the conclusion that you hoped and expected you could sell 69,000,000 gallons of Core-Min-Oil a year? A. Yes.

Q. Was the fact that before you could use your Core-Min-Oil in any foundry you would have the foundry fit the core oil rather than having a core oil fit the foundry given any consideration?

A. Yes, we talked of that.

Q. You took that into consideration?

A. Yes, we did.

Q. None of these factors so far, however, deterred you from [182] hoping or expecting that you would eventually assume and take over the entire market of linseed oil?

A. That is right, because of the cost.

Q. The cost of what?

(Testimony of Allan B. Ruddie.)

A. The saving in cost; the cost of material is one thing.

Q. Let us look at that just a second. You said something yesterday that Mr. McSwain stated that he was going to sell your Core-Min-Oil at fifty cents a gallon; is that right?

A. Yes, that is what he said, when he put it into one package and took it to Axelson, that he made the price to Mr. Axelson in Los Angeles of fifty cents a gallon, and Mr. Axelson did not object to the price.

Q. Would you have been satisfied to have your core oil sell at fifty cents a gallon? A. Yes.

Q. Do you think that is a fair market price for it?

A. I wouldn't know. We haven't any idea of what the fair market price should be on it. There is a great saving in drying time.

Q. Do you mean to say you never figured out what you thought would be a fair market price for your core oil, Mr. Ruddie?

A. Well, in talking with the Shell Company, it was agreed they would set the price, and it was left entirely in their hands to set the price of this core oil.

Q. My question is, Is it your testimony that you never at any time figured out a probable market price for your core oil?

A. Well, we discussed many prices for it, but we never——

(Testimony of Allan B. Ruddle.)

Q. I am not speaking of Shell.

A. No, I did with Mr. Peck discuss many prices.

Q. What were some of the prices you arrived at?

A. We talked twenty cents a gallon, twenty-five cents a gallon, [183] thirty cents a gallon, forty cents a gallon——

Q. In other words, you started at a minimum of twenty cents and went as high as fifty cents; is that right? A. That is right.

Q. Suppose we take a mean of say thirty-five cents a gallon. Would that be fair?

A. I don't know whether it would be fair or not.

Q. It wouldn't be fair to you?

A. Yes, I would say that would be fair.

Q. Do you think it would be too much for the foundry?

A. Well, I don't know whether it would be too much or not.

Q. What price do you think would be fair both to you and the foundry?

A. I haven't any way of telling.

Q. Do you want to take twenty-five cents as being a fair price? A. No, I wouldn't say.

Mr. Hackley: If your Honor please, I think this is highly argumentative and speculative. This witness has not attempted to qualify as an expert on prices on this article. The Shell Company under the contract reserved exclusively the right to determine the market price at which the product

(Testimony of Allan B. Ruddle.)

should be sold. They, and they alone, are the ones that can tell what price would be adopted. [184]

Mr. Aurich: I don't want to be insistent. My only point is this: This witness has told us that Core-Min-Oil had a great advantage over linseed oil because it was cheaper. I want to bring out some facts and figures by this witness to show that he is highly in error.

The Court: Objection overruled.

Mr. Aurich: Q. Do you recall discussing the price at which Core-Min-Oil could be sold with the American Bitumuls Company?

A. No, I do not.

Q. You have no recollection of that at all?

A. No, I have not.

Q. You don't recall submitting a prospectus or a pamphlet or a document, whatever you call it, to them in which you set out the probable price at which your Core-Min-Oil could be sold—you or Mr. Peck?

A. No, I don't remember that.

Q. You have no recollection of that?

A. No, I have no recollection of it.

Q. Who handled these negotiations that you talk about between you and the American Bitumuls Company? Did you have anything to do with them at all?

A. Very little.

Q. Who handled them?

A. Well, Mr. Peck—Lydell Peck had more to do with it than I did.

Q. Weren't you consulted in the matter at all?

(Testimony of Allan B. Ruddie.)

A. Yes, but I was busy working on tests and things most of the time.

Q. And you don't recall anything about it?

A. No.

Q. Well, if you won't take a figure, Mr. Ruddie, I am going to take a figure for you. We are going to assume that it is going to be fair to your and fair to the foundry to sell your Core-Min-Oil at thirty cents a gallon. What was the market price of linseed oil per gallon in 1938?

A. Well, I would [185] say about a dollar a gallon.

Q. About a dollar a gallon. That is straight linseed oil? A. Yes, that is as I remember it.

Q. Do you know how many foundries used straight linseed oil?

Mr. Hackley: Are you talking about boiled linseed or raw linseed?

Mr. Aurich: Whatever the witness is referring to; I don't care.

A. Well, the Vulcan Foundry used it entirely, I know that.

Q. Do you think that straight linseed oil as used by the Vulcan Foundry is the largest selling core oil in the United States?

A. Well, we understood that it was.

Q. You never heard of a diluted linseed oil being sold? A. No.

Q. You never heard of a foundry using linseed oil diluted with kerosene, for example?

A. No.

(Testimony of Allan B. Ruddle.)

Q. In which they used as say 20 to 23 per cent of kerosene? A. No.

Q. You never heard of that? A. No.

Q. But your impression is now that a man could buy a gallon of linseed oil in 1938 for a dollar a gallon?

A. Maybe a little more than that, but it seems to me we figured about a dollar a gallon.

Q. It might be less too?

A. Oh, it is possible it was a little less.

Q. If we take the arbitrary figures that you have given us of thirty cents a gallon for that core oil, a foundry man has to buy three times as much as he would of linseed oil, and therefore we have a price of ninety cents a gallon as against a dollar; is that right? A. That is right. [186]

Q. And if you raised the price of your core oil we would get to the point where your Core-Min-Oil is more expensive than linseed, wouldn't we?

A. Yes.

Q. Very soon? A. That is right.

Q. For example, if you raised the price of your Core-Min-Oil you would get to the place where it costs the foundry man \$1.20 to get the same quantity of core oil that he could get for a dollar with linseed oil? A. That is right.

Q. So that whether or not there is a great saving in the price of the materials in comparison between Core-Min-Oil and linseed oil depends on a great many varying factors; is that fair?

(Testimony of Allan B. Ruddie.)

A. Well, of course, we were figuring what the material costs. The cost is—at the time we were discussing it with Mr. McSwain, why, he said that asphalt emulsion would cost—they were selling it for about five cents a gallon. Now, the solution itself would cost about five cents a gallon to mix.

Q. Would the foundryman care how much the material cost you?

A. No, but in arriving at a sales price we could meet any price that we had to, because we had a margin to work on.

Q. I have one more question about the American Bitumuls negotiations, Mr. Ruddie, and I wish you would give it some serious consideration. Isn't it a fact that during the course of your negotiations with the American Bitumuls Company you and Mr. Peck agreed that the market price for that core oil, namely, Core-Min-Oil, could be twenty or twenty-five cents per gallon?

A. Well, now, that is possible; I don't know.

Q. By the way, had you adopted this name Core-Min-Oil when you went to the American Bitumuls Company?

A. Now, I don't know that we did or not. Maybe about the time that we went to the Shell Oil Company; I don't know. We discussed the name with [187] Shell Oil Company and they thought it was a good name for it.

Q. It is a fact, isn't it, Mr. Ruddie, that your Core-Min-Oil is an oil that does not fit the foundries as they exist today, but is an oil which would require

(Testimony of Allan B. Ruddie.)

and necessitate the foundries to remodel, or special foundries to fit your particular core oil?

A. Yes. In that connection I can remember a conversation that I had with Mr. McSwain where he said that if he could sell a foundry, one foundry in a district, that would cause the other foundries to follow suit because of the great saving that they could make if they would adopt this solution.

Q. You seem to remember more and more of your conversation with Mr. McSwain as time goes on, don't you?

A. Yes, I do, because it refreshes my memory as we talk about it. This has been four years ago that all this happened.

Q. That is a long time to remember conversation, isn't it?

A. Yes, sir; I had forgot a lot about it, and as we talk about it a lot of things come back to me that I did not remember. [188]

Mr. Aurich: I will drop it, your Honor.

Q. In your testimony you made some mention about Shell shipping some oil to Axelson's Foundry, and if I remember correctly, you fix that as about the time you had the conversation with Mr. McSwain, at which time he told you that the market for core oils in the United States was sixty million gallons a year; is that right?

A. Yes, I remember that.

Q. And that is the time of the shipment of the oil by Shell to the Axelson Foundry?

A. Well, it was along about that time.

(Testimony of Allan B. Ruddie.)

Q. And that was sometime in 1939?

A. Well, I don't know the date of it, but it was——

Q. You don't even know the year?

A. It seems to me it was in '38, wasn't it?

Q. You thought it was in '38?

A. Well, I don't know whether it was——

Q. Well, I don't know; I am asking you. Can't you tell me whether that was in 1938 or 1939?

A. No, I couldn't tell you. If you will let me see that McLaren letter, I can tell you, because——

Q. What has the McLaren letter got to do with the Axelson Foundry?

A. Well, because that came right after that.

Q. What came after what?

A. The letter came.

Q. After the Axelson Foundry?

A. Yes, that is right.

Q. Shortly after?

A. Well, it was within a short time, I think.

Q. And you don't know now what year that letter was written? A. No, I couldn't tell you.

Q. And that is the letter by which Shell canceled that contract here in suit, is that right?

A. That is right. [189]

Q. Well, the letter is dated July 1939.

Mr. Hackley: July 26, 1939, I will stipulate to that—Exhibit 10.

Mr. Aurich: Q. With that in mind, will you tell me what year it was that you had this discussion with Mr. McSwain, at which time he told you

(Testimony of Allan B. Ruddle.)

that sixty million gallons of core oil was the market in the United States? A. In 1939.

Mr. Aurich: Q. Mr. Ruddle, I want to direct your attention for the next few moments to this conversation you had with Mr. McSwain sometime in 1939 at which time he is reported to have told you that there was a sixty million gallon market for core oils in the United States.

A. That is for Core-Min-Oil.

Q. For Core-Min-Oil?

A. Yes, that is right.

Q. Can you fix the period of the year for me?

A. The period of the year? Well, it was just either after he had been down to the Axelson Foundry first before they shipped anything down, or it was anyway during that time, because I remember that he had the price of fifty cents a gallon in mind when he was figuring on his desk.

Q. With reference to the letter that McLaren wrote dated July 26, 1939, can you fix the time of this conversation?

A. Yes; it was sometime prior to that; possibly two months.

Q. That would fix it roughly, then, let us say May-June 1939?

A. Yes, that is the best of my recollection.

Q. Now, can you tell me exactly what Mr. McSwain said in this conversation? And I would like to have you give me as nearly as you can recall his exact words. [190]

A. Well, I don't know that I can give you his

(Testimony of Allan B. Ruddle.)

exact words, but it was something like this: I went over to ask Mr. McSwain when they would start selling material—we were getting terribly impatient because it was just dragging and dragging, we thought—and Mr. McSwain told me—started showing me what the market would be if their solution was in one package. And I remember him sitting down to his desk and making some figures on his desk and discussing the size of this market, saying that there was sixty million gallons of Core-Min-Oil could be sold, and if we could get fifty cents a gallon it would be a nice piece for both the Shell and for us. I remember him making that statement.

Q. That is, he was speaking there of if he could get Core-Min-Oil in one package?

A. Yes, that is right.

Q. How do you happen to recollect that conversation so clearly after all these years, Mr. Ruddle?

A. Well, I do recall that, and I was thinking about it—have been thinking about it for the last few months, and that conversation came back to me.

Q. It was quite an important conversation?

A. Yes; we had been having those right along; we talked all the time, but I remembered him telling me this at that time.

Q. And you considered that an important conversation at the time that it occurred?

A. Yes, because it stood out in my mind, because I remember it had figures in connection with it.

(Testimony of Allan B. Ruddie.)

Q. It was something that has remained in your mind ever since and isn't something that you just thought of recently?

A. No, it just came back to me; I had thought of it off and on.

Q. Do you recall a controversy that arose between you and Shell sometime in the fore part of 1939 or latter part of 1938 about [191] a Spotswood-Ruddie application? A. Yes, I recall.

Q. You recall there was some disagreement between the parties at that time? A. Yes.

Q. It was subsequently settled to your satisfaction? A. Yes.

Q. And at that time you became suspicious of the Shell Company? A. Yes.

Q. And what did you do?

A. Well, I made notes of our conversations, tried to record many of the things that happened; not all of them, but many of them.

Q. In other words, following this controversy—let's fix it as January 1939,—you began to believe that perhaps the Shell Company was not doing everything they should and that you had better keep a record of all of the important conversations that you had with Mr. McSwain for future reference; is that correct? A. Yes, I kept most of them.

Q. And you kept fairly complete records from that time on?

A. Well, no. That had to do with the Spotswood application. Yes, I kept quite complete rec-

(Testimony of Allan B. Ruddle.)

ords. There is quite a space of time in there that I didn't keep anything, and whether I put them down or not I wasn't able to find them. I know there was more conversations happened than I had in my notes.

Q. I don't understand your last statement. My point is, Commencing with the Spotswood-Ruddle incident—you recall that your first not that we have referred to in your deposition is dated about January 12, 1939; do you recall that?

A. Yes, I remember that.

Q. Do you recall testifying that commencing at or about that time you kept fairly complete records of all conversations that you thereafter had with Mr. McSwain?

A. Yes, that is right.

Q. Some of those notes we have referred to in your deposition, [192] haven't we?

A. Yes, that is right.

Q. Do you recall that just immediately prior to the filing of this suit you made out a report of conversations that you had had with Mr. McSwain over this period of time excluding those of which you already had a record?

A. Yes, that is right, just as I remembered them.

Q. In other words, just prior to suit, for your counsel's benefit you sat down and detailed in rather chronological, detailed order all of the events that led up to your going to Shell, all the incidents that happened and statements made with as much detail as you could then recall?

(Testimony of Allan B. Ruddie.)

Mr. Hackley: Are you referring to an instrument in writing, Mr. Aurich?

Mr. Aurich: Yes.

Mr. Hackley: Will you show it to the witness?

Mr. Aurich: Yes, I will show it to him when he answers my question.

A. Yes, I remember writing such a statement.

Mr. Aurich: Q. And it was for the purpose I mentioned?

A. Yes, it was what I could remember at that time.

Q. It was to give Mr. Hackley the facts upon which he could predicate this suit; is that right?

A. I don't remember the purpose of it, but I sat down one day and wrote what I thought was the important parts of this——

Q. And that typewritten report or this report of your alleged conversations with representatives of Shell was made roughly a period of a year and a half or two years after some of the events occurred? A. That is right.

Q. Without looking at your memorandums, can you tell me whether there is anything contained in any note that you made about Mr. [193] McSwain's statement to you that there was a probable market for Core-Min-Oil of sixty million gallons a year?

A. No, I wouldn't say it is in there.

Q. You don't know?

A. No, I don't know whether it is or not.

Q. Do you know whether there is anything in

(Testimony of Allan B. Ruddle.)

any of your notes in which you discuss the Axelson situation?

A. It seems to me that there is. That wouldn't be in that last summary, I don't think, of the Axelson.

Q. No, that would be in a note that you made shortly after the conversation occurred, wouldn't it?

A. Yes, that would be the Axelson Foundry incident.

Q. I call your attention to a document which has been heretofore identified in your deposition as Defendants' Exhibit C for identification. It is dated at the top June 23, 1939, and on the last page June 24, 1939, that date appearing on what appears to be the tenth page. I ask you to look at it and see if you can find any reference in that handwritten note to the shipment by the Shell Oil Company of any oil to the Axelson Foundry.

Q. Well, without reading the whole document, Mr. Ruddle, consisting of ten pages, you notice that there is a reference to the Axelson Foundry on the first page, don't you?

A. That is right.

[194]

Q. What is that document, Defendants' Exhibit C for identification?

A. It is a memorandum of a conversation I had with J. F. McSwain on June 23, 1939.

Q. It was written by you on June 24, 1939, is that right?

A. That is right.

(Testimony of Allan B. Ruddie.)

Mr. Aurich: Q. Will you just read into that record what you find, at least on the first page, what you are there reporting that Mr. McSwain told you about the Axelson Foundry?

Mr. Hackley: I submit the document speaks for itself, your Honor, and I ask that it be received in evidence.

The Court: I do not know what the document contains.

Mr. Aurich: I am not going to offer it in evidence, your Honor. It is a self-serving declaration made by this witness.

The Court: How am I going to know.

Mr. Hackley: I say the document speaks for itself. It should be offered in evidence. The witness is not going to add to it or take away from it by merely reading it over.

The Court: How am I going to be able to know what it is? [195]

Mr. Hackley: Is it your Honor's wish in this case that we read to your Honor these various documents and instruments that are put in evidence?

The Court: How am I to know what is going on?

Mr. Hackley: I thought it would be too time-consuming to do that. That is why I offered the letters yesterday without reading them.

The Court: They will have to be read. I am not going to look at this record of reporter's notes.

The Witness: Do you want me to read this?

Mr. Aurich: Q. Mr. Ruddie, use these notes

(Testimony of Allan B. Ruddie.)

you made on June 24, 1939, and tell me exactly what Mr. McSwain told you about the Axelson Foundry at that conversation, as is disclosed by your notes.

A. He said he made a shipment to Los Angeles to a foundry called "Axelson Foundry," and that the emulsion arrived there in bad shape, and they wanted to try to overcome that trouble.

Q. That is the only reference you find to Axelson Foundry on the first page?

A. That seems to be the only thing.

Mr. Hackley: I submit, your Honor, either the witness should be permitted to read the whole document, or offered in evidence, the whole document offered, and I will be glad to have it read to the Court either by the witness or subsequently. But to have piecemeal some part of a document in writing offered here violates every rule of evidence.

The Court: He wants to examine him in relation to a memorandum he made previous to this hearing, is that true? [196]

Mr. Aurich: That is true, your Honor.

Mr. Hackley: The memorandum is not in evidence, your Honor. That is my objection.

The Court: Is there any doubt about this being his handwriting?

Mr. Hackley: Not at all.

The Court: Proceed; proceed.

Mr. Aurich: Q. That is the only notation that you have in your memorandum, Defendants' Exhibit C, concerning the Axelson Foundry, or have

(Testimony of Allan B. Ruddie.)

you read your notes sufficiently to be able to determine that?

A. That is the only thing I can see by hurriedly glancing at it.

Q. I am not trying to trap you, Mr. Ruddie. I think you are correct. But I will examine the notes tonight, and if there is any other place, I will call it to your attention. A. All right.

Q. Now, is it your testimony, Mr. Ruddie, that Mr. McSwain told you that they had shipped a drum of Core-Min-Oil in an emulsified product, or one package, in a drum, to the Axelson Foundry, and that when it arrived there it was gummy, the emulsion had broken, and they were unable to use it, but that Mr. Axelson inquired as to the price of this product? A. That is right.

Q. And Mr. McSwain told you that he told Mr. Axelson that the price would be 50 cents a gallon?

A. Well, now, maybe that was prior. Mr. McSwain made several trips to Los Angeles, and had gone to the Axelson Foundry probably prior to that.

Q. It probably never occurred at all, Mr. Ruddie, so I can't guess at these things. I have only what you tell me.

A. Mr. Peck called on Mr. Axelson—Mr. McSwain called on Mr. Axelson, and when he returned home he told both Lydell Peck and [197] myself that he had quoted a price to Mr. Axelson of 50 cents a gallon, and there was no objection to the price by Mr. Axelson, and he was very much elated

(Testimony of Allan B. Ruddle.)

over the fact that he could get 50 cents a gallon for this material.

Q. If you testified yesterday that Mr. McSwain told you that after the drum of oil had been shipped Axelson, you were in error?

A. Well, I couldn't tell by that whether or not it was after or before. I do know that he made trips there in discussing this——

Q. Yesterday you testified——

Mr. Hackley: Mr. Aurich, will you show the witness the record of yesterday, if you are stating his testimony?

The Court: I recall the testimony yesterday. He said he was elated with the price of 50 cents a gallon. Proceed with the case.

Mr. Aurich: Q. Do you recall Mr. McSwain ever telling you that he had stopped and talked to Mr. Axelson of the Axelson Foundry in Los Angeles, and that Mr. Axelson told him that after trying the Core-Min material in his foundry, he found he could not use it because of the different sizes of cores that require different lengths of drying time?

A. I have no doubt, if it is in evidence, that Mr. McSwain told me that, because I wrote that down right after.

Q. What do you mean, "if it is in evidence," Mr. Ruddle?

A. I thought you were reading from that memorandum.

Q. And supposing I was not reading from the

(Testimony of Allan B. Ruddle.)

memorandum? Do you have any recollection of that conversation?

A. No, I have not.

Q. You do not know whether that occurred or not?

A. No, I do not.

Q. What is this document dated July 19, 1939, Defendants' Exhibit E for identification, that I am handing you?

A. That is a copy [198] of a memorandum of a conversation that I had with Mr. McSwain.

Q. And when was the memorandum made with respect to the time of the conversation?

A. Well, it is dated July 19th, and I imagine it would be made on that day or the day following. I know it was made right afterward.

Q. I will call your attention to what appears to be the 7th page of that memorandum, and I will ask you to read it carefully, and using that memorandum to refresh your recollection, will you tell the Court what Mr. McSwain told you on July 19, 1939, concerning the shipment of the oil to Axelson Foundry?

A. Do you want me to read it?

Q. No. Doesn't that refresh your recollection as to the conversation?

A. Yes, I remember that now.

Q. Tell the Court what the conversation was you had with Mr. McSwain on July 19, 1939, concerning the shipment of oil to the Axelson Foundry.

A. Mr. McSwain said that he stopped and talked to Mr. Axelson of the Axelson Foundry in Los Angeles. Mr. Axelson told him after trying the Core-

(Testimony of Allan B. Ruddle.)

Min material in his foundry, he found he could not use it because of the different size cores that required different lengths of drying time.

Mr. Hackley: May I ask the record to show that the witness read from Defendants' Exhibit E, if it please the Court?

Mr. Aurich: I don't know whether he read from that or not.

Mr. Hackley: Q. Is that correct, Mr. Ruddle?

A. Yes, I read from that.

Mr. Aurich: Q. Did you read Defendants' Exhibit E for identification in its entirety?

A. No, I did not. I just read that part of it.

Q. And you did not read Defendants' Exhibit C for identification in its entirety?

A. No, I did not. [199]

Q. Are you able to testify now whether or not there is anything contained in either one of those two documents wherein you report a statement by Mr. McSwain that there is a market for 60,000,000 gallons of Core-Min-Oil?

A. No, there is nothing in there at all.

Q. There is nothing in either one of the exhibits? A. No, there is not.

Q. Is there anything contained in any memorandum you made of any conversation with Mr. McSwain where that fact is reported?

A. No, I didn't find any.

Q. When you made the statement up for Mr. Hackley just prior to the filing of the complaint herein, and after the controversy between you and

(Testimony of Allan B. Ruddle.)

Shell had arisen, which statement is Plaintiffs' Exhibit 1 attached to the deposition of Mr. Ruddle, did you make any reference to the fact there that Mr. McSwain had told you that there was a probable market of 60,000,000 gallons of Core-Min-Oil per year?

Mr. Hackley: I object to the testimony about a written document, unless it is offered, your Honor. It speaks for itself.

The Court: What is this you are reading?

A. I am reading a memorandum I made a year and a half after—just a memorandum, as I recall, of the events of this. I don't see any mention in this.

Mr. Aurich: Q. Now, you have made some mention in your testimony about a core wash.

A. Yes.

Q. Just how did you make up this core wash, Mr. Ruddle?

A. I used the solution that is made up of sodium silicate and sodium sulphate—I mean aluminum sulphate and—I don't know whether I gave it to you right or not. Sodium silicate is one of the ingredients, with water, and to that I added some graphlite. And I used some core wash at the Macauley Foundry with that. And [200] then when we were doing work—when Spiri was doing work at the Vulcan Foundry, I talked with Mr. McSwain about that. He said that he had better make up a sample and take it over to Mr. Spiri and let him try it.

(Testimony of Allan B. Ruddie.)

Q. I do not like to interrupt your answers, Mr. Ruddie, but I think you are going very far afield, and I think we will make much better time if you try to confine your answers to my questions. My only question was, How did you make up your core wash that you referred to? Did you fully answer that question? Or did you use something else besides the solution and graphite?

A. I was going to lead up to it. I tried carbon black, it was called, manufactured by the Shell Chemical Company, in the sample that I gave to Mr. Spiri.

Q. Carbon black and what else?

A. The solution.

Q. What were the percentages of solution to graphite?

A. I have that written down some place, but I don't know that I can tell you. I think there are 2500 cc's of solution to 1200 cc's of graphite. Now, that is just a guess. I can get you the right amount.

Q. Roughly two to one?

A. Ten to one, isn't it?

Q. Ten to one? A. Twenty to one, I think.

The Witness: Well, I think it really is 20 to 1.

Mr. Aurich: Q. What did you mean when you said you could get me the exact formula?

A. I have it written down some place; maybe I can find it.

Q. Will you look for that this evening?

A. Yes, I will try to find it.

(Testimony of Allan B. Ruddie.)

Q. When you used this carbon black you spoke of in your solution, [201] what were the percentages of each?

A. That is the percentage I gave to you, on carbon black.

Q. 2500 cc's of solution and 1250 cc's of carbon black?

A. I had better get that for you, because I am only guessing.

Q. You have no independent recollection at the present time?

A. No; I had the amount and gave it to Mr. Spiri, put it on the can, how to mix it.

Q. Do you recall what it is now? A. No.

Q. You will get that for me?

A. I think I can.

Q. Both the first core wash of the solution and grahpite; secondly, the core wash which contains your solution and carbon black, and while you are looking for that you might as well look for the formula of the solution that you used in making this core wash.

Your counsel has asked me to inquire whether or not those formulas may be in these notebooks which were identified at the taking of your deposition.

A. It is possible that it is in there, but I wouldn't be sure.

Mr. Aurich: If the Court has no objection, I have no objection to letting the witness withdraw these for this evening, for the purpose of making

(Testimony of Allan B. Ruddie.)

a search. They have only been marked for identification in the deposition.

Q. And if I have not included all of them in the group which I had, Mr. Ruddie, I wish you would take whatever you can find to enable you to give me the answer I want. A. That is right. [202]

Q. I do not suppose you can tell me now anything that you disclosed to Shell about the formula for making your core wash either with graphite or with carbon black?

A. As I recall, I made a card, I wrote it on a card and attached it to the can that I turned over to Mr. Spiri.

Q. Did you use the graphite before you used the carbon black? A. Yes, I did.

Q. Why did you change from graphite to carbon black?

A. Well, carbon black, I was told, was in large piles at the Shell Chemical Company, and that they had a limited market for it. I believe they were selling it to Columbia Steel for \$12 a ton. And graphite is expensive, and I thought this probably would serve the same purpose. I tried it. I got the carbon black through Mr. McSwain from the Shell Chemical Company at Martinez.

Q. Do you know whether the method of making your core wash is set forth in any of your patents here in evidence? A. No, I do not know.

Q. Did you ever use any diatomaceous earth in your core wash?

(Testimony of Allan B. Ruddie.)

A. I have tried it. I have tried diatomaceous earth and all kinds of asbestos, fibre asbestos.

Q. Did you ever tell Mr. McSwain if he would use some diatomaceous earth with that solution he would have a good core wash?

A. Not that I recall.

Q. Would you get a good core wash using diatomaceous earth in your solution?

A. I doubt very much that we would.

Q. Didn't you describe that by mixing diatomaceous earth with your solution you would get a good core wash in one of your patents here in evidence?

A. In one of the patents?

Q. Yes.

A. It is possible that I did; I don't recall.

Q. Let me call your attention, Mr. Ruddie, to Plaintiffs' [203] Exhibit 2, which is your patent No. 2,204,913, to the statement appearing on page 2, column 1, beginning at line 62, which reads as follows:

"Burning of the core due to impinging of molten metal during the pouring operation, which is ordinarily prevented by a coating of specially prepared substances for this purpose, which are formed principally of graphite, asbestos, et cetera, may be prevented by the application to the surface of the completed core of a core paint made up of a mixture of my solution with diatomaceous earth."

(Testimony of Allan B. Ruddie.)

The patent then goes on to say how it may be mixed.

A. Yes, I would say that would make a good core wash.

Q. You think now——

A. Yes, I recall I tried it and it was a good core wash.

Q. But you do not recall that you ever told Mr. McSwain anything about it, or do you recall that you told him at that time?

A. It is possible I told him about that. I do recall I told him about using the graphite and the carbon black.

Q. You think graphite and carbon black make better core washes than the diatomaceous earth described in your patent?

A. Yes, I think it would.

Q. Prior to your negotiations with the Shell Oil Company regarding your Core-Min-Oil, had any Core-Min-Oil been sold either by you or by Mr. Peck or anyone acting under his authorization?

A. None.

Q. Did you have any business at all of making and selling Core-Min-Oil prior to your negotiations with Shell? A. No, we hadn't.

Q. When you first mentioned your core oil to Mr. McSwain, I believe you told him that its ingredients were asphalt emulsion [204] and a secret solution? A. Yes, that is right.

Q. You testified yesterday that you had done some work on fire-proofing of lumber with a solu-

(Testimony of Allan B. Ruddie.)

tion that you were interested in, and that somehow or other you got the idea that you could make a core oil for foundries out of this solution. What were the chemicals that were contained in this solution that you used for fireproofing properties?

A. Well, it was the same chemicals but they are used a little differently.

Q. Will you name them for us?

A. Sodium silicate, aluminum sulphate, and sodium fluo-silicate.

Q. That solution had been invented by a man by the name of Watson, is that right?

A. That is right.

Q. Did you get the idea that you could make a core oil for foundries out of this solution with which you had done some work in connection with the fireproofing of lumber?

A. Well, it was the same chemicals, but not the same solution used for fireproofing lumber. That is a low Baume solution and it is made up differently.

Q. So if you testified yesterday that you did get the idea, as I have described, using this same solution, that was in error?

A. Yes, I did not mean to say I was using the same solution—the same chemicals is what I meant.

Q. This solution of Mr. Watson composed of sodium silicate, [205] sodium fluo-silicate and aluminum sulphate is a solution that had been patented long prior to the time you went to the Shell Oil Company?

A. Yes, I think so.

(Testimony of Allan B. Ruddie.)

Q. And you had been instrumental in attempting to prote that solution, is that right?

A. That is right.

Q. That was as far back as 1929?

A. That is right.

Q. Now, on your direct examination you testified about some experiments you made early in your work in an endeavor to put, first, the red and the pale oils you spoke of in a single package with your solution, and you also spoke of some work that you did in connection with your attempts to place an asphalt emulsion and your solution in a single package or container. Do you recall that testimony?

A. Yes; that was not asphalt emulsion; it was just asphalt.

Q. Just asphalt?

A. Yes. I tried to emulsify it.

Q. Why were you attempting at that stage of the proceeding to put these various ingredients into a single package or container?

A. Well, I was trying to make a core oil, and I was trying to put it in one package.

Q. I do not want to mislead you here, Mr. Ruddie. It may be through inadvertence. But I am going to call your attention to page 23 of your testimony you gave here yesterday, and I think if you read it, you will find that you spoke of attempts to put the sodium silicate solution and the asphalt emulsion in a single package. Will you read that and see if that is correct (handing transcript to the witness)?

(Testimony of Allan B. Ruddie.)

A. What period of time is this?

Q. I do not know what period of time it is. I am only referring to the fact that on your direct examination you testified in substance that you attempted to put sodium silicate and asphalt [206] emulsion in a single package. I am not interested at the present time in the time.

A. You said a minute ago, as I understood I was testifying, that was when I first started the experiments.

Q. Oh, no, I do not mean, of course, before you started with asphalt emulsion, but you did attempt to put asphalt emulsion and sodium silicate—asphalt emulsion and your solution in a single package, and you also attempted to put the pale oil and red mineral oils into one package with your solution; is that correct?

A. Yes, I put them together and they separated out.

Q. Yes. Why were you trying to put them in one package?

A. Well, that was the beginning of the tests. Why I did it I couldn't tell you.

Q. Of course, you didn't do it because you appreciated the fact that to sell them in two packages would be a rather difficult sales hazard to overcome?

A. That never occurred to me at the time.

Q. That thought never occurred to you at the time?

A. No, it did not.

Q. You have no reason to offer now why you

(Testimony of Allan B. Ruddle.)

tried to put them in a single package other than what you have stated? A. That is right.

Q. During all your experiments from January 1937, or whenever it was—you commenced about that time—up to the time you ceased experimenting and took your core oil to Shell, if I understand your testimony correctly, you were experimenting with a solution and attempting to combine with a number of various ingredients at various times; is that right? A. That is right.

Q. Did you ever take asphalt emulsion as your starting point or [207] base as a core oil and attempt to mix it with ingredients other than your solution? A. Yes, I think I did.

Q. When, where, and what other ingredients did you attempt to use?

A. Well, I then—I couldn't find any record of it, but I remember trying several things with it.

Q. Well, when was it?

A. Well, at the Macauley Foundry we tried making cores out of asphalt emulsion alone, and then we added the various things to it. I couldn't give you any detail on it, because, in the first place, the baking time was even longer than Houghton Oil.

Q. I am not interested in baking times or anything else; I am interested in knowing what ingredients other than your solution you attempted to mix with asphalt emulsion to make a core oil, and I do not mean experiments for the purpose of observation; I mean for the purpose of perfecting a core oil.

(Testimony of Allan B. Ruddie.)

A. Well, I think I used sodium sulphate straight in one or two cases.

Q. Sodium silicate forms major parts of your solution? A. That is right.

Q. What else?

A. Well, I can't recall now. It seemed to me—I think there was a first application for patent on something entirely different, and that is where I tried that—that other patent that was abandoned.

Mr. Aurich: Q. In other words, at the present time you have no independent recollection whether or not you used anything else other than asphalt emulsion or sodium silicate with asphalt emulsion; is that correct?

Mr. Hackley: At what time, Mr. Aurich? [208]

Mr. Aurich: At the time the witness is speaking of.

A. I couldn't—it seemed to me I used some phosphates—I think in that patent that was abandoned, and in there I ran quite a series of tests with asphalt emulsion and the phosphates.

Mr. Aurich: Q. Those experiments did not continue very long, did they?

A. No, they did not.

Q. A very short period of time, as a matter of fact? A. I think so.

Q. In one of your preceding answers you said something about the first application was abandoned, and I wanted to go into that a little bit. I don't understand your use of the word "first," Mr. Ruddie.

(Testimony of Allan B. Ruddle.)

A. Well, I meant the application, the one that was abandoned.

Q. You mean the one that was abandoned irrespective of its number—first, second or third?

A. That is right.

Q. Going back to that abandoned application, is that one of the applications that is mentioned in your contract with Shell?

A. That is right.

Q. Without anything more than that now, can you tell me whether or not that application had been filed at the time you had your first conversation with McSwain, or was the application filed after you had that conversation with Mr. McSwain?

A. I wouldn't know. [209]

Mr. Aurich: May it please the Court, it seems that there is a little confusion between counsel as to whether or not a certain exhibit is a true and correct carbon copy of a letter which was sent by the Shell Oil Company to Mr. Hackley. Yesterday afternoon Mr. Hackley admitted that he had received the original of the letter which is Defendants' Exhibit Y. Upon my return to the office last evening I found another letter, dated December 1, 1939, which is a day after the date of the letter Exhibit Y, and I have no way of knowing which is the copy of the letter that was sent to Mr. Hackley, and he hasn't at the present time. So we have agreed, with the Court's permission, to offer in evidence as Defendants' Exhibit Y-1 a copy of a letter from the Shell Oil Company to Mr. Hackley

(Testimony of Allan B. Ruddle.)

dated December 1, 1939, and Mr. Hackley is to see which is the copy of the letter he received and then we will withdraw the other one, if that meets the Court's approval.

The Court: Let it be admitted and marked.

(The letter referred to was marked Defendants' Exhibit Y-1 in evidence.)

Mr. Aurich: Q. Mr. Ruddle, you were going to get for me the formula of the core washes that you referred to in your testimony yesterday if you could find them in your notebooks. Did you look for them?

A. I looked through the notebooks, but I was unable to find them; but I did find the formula—I mean where I had tried out asphalt—I mean a [210] sodium solution and diatomaceous earth. My recollection now is that it made a good core wash. And I also tried out graphite at the same time. The notes are in that little book there.

Q. In other words, you want to change your testimony in that respect that you gave yesterday where you said that you did not think it would make a good core wash?

A. Well, I think I said at last that it did, but I was trying to verify that. And I also notice too in that book where the formula that you asked about—1750 cc's of sand and 125 cc's of solution and 80 cc's of—60 or 40 cc's of emulsion and 65 cc's of water, if I remember rightly, and that solution no doubt I gave to Mr. Spotswood, because

(Testimony of Allan B. Ruddie.)

that was one of the leading solutions that we were using at the time—the leading formula.

Q. You now recall that that was one of the leading formulas that you used for making your core oil?

A. Yes, in those notes—it is given in those notes that I went over last night, and I remembered it.

Q. During the time before the signing of the contract and after your first visit to Mr. McSwain did you ever deliver to the Shell Oil Company for the purpose of their experimentation any of the solution used by you in making your core oil?

A. What is the time? Can I have that question read?

Q. The time is before the signing of the contract and after your first visit to Mr. McSwain.

A. Did I ever deliver to the Shell Oil Company the solution that I used in making up Core-Min-Oil?

A. I delivered some solution to them for another purpose. It [211] was not the same as that I used—as I recall, that I used on core oils. I don't think it was the same. It was for another purpose.

Q. You spoke yesterday or on your direct examination about some tests that Mr. Spotswood performed at Martinez to determine what was causing the difficulty you were experiencing with the softening of the cores on occasions.

A. Yes, I gave him some of the solution and——

Q. My question is, You recall that testimony?

(Testimony of Allan B. Ruddie.)

A. Yes, that is right.

Q. Where did Mr. Spotswood get the solution with which he made the cores to make those tests?

A. I took the solution up to Martinez with Mr. Waller and Mr. McSwain, as I recall it.

Q. Then after your first visit to Mr. McSwain and prior to the signing of the contract you did deliver to the Shell Oil for the purpose of their experimentation the solution that you used in making up your Core-Min-Oil?

A. That is right.

Q. That solution contained what?

A. That solution contained water, aluminum sulphate and sodium fluo-silicate and aluminum silicate—I mean sodium silicate.

Q. Did I understand your testimony on direct examination to be that you gave some solution to Shell to experiment with prior to the making of the contract which included red oil in it?

A. I don't recall just what was in that test. I gave some solution to Mr. McSwain, and I think it had to do with dry mineral oil, and he sent it up to Martinez, I learned afterwards, and Mr. Ames at Martinez told me that he had tried to analyze it.

Q. What was your purpose of putting the red oil or the dry mineral oil in the solution you gave to Mr. McSwain?

A. Well, I couldn't tell you now what the test was about. [212]

(Testimony of Allan B. Ruddle.)

Mr. Aurich: I didn't ask you what the test was about. Will you read the question, please.

(Question read.)

A. Well, I was attempting to dry the oil so we could use it in paints, I think, at the time.

Mr. Aurich: Q. Did you explain to anybody connected with the Shell Oil Company when you submitted to them this solution containing this dry mineral oil that that was not your secret solution with which you had worked at Macauley's?

A. I don't think I told them anything about what it was. I gave this—I talked—I went to see Dr. Rosenstein, I think, in the Shell Oil Company, and Dr. Rosenstein told me the policy of the company was that we must turn over our patent applications and all secrets to them before the Shell will examine them, and I afterwards heard from Dr. Rosenstein that the Shell refused to examine this because I refused to give them all of the information about the—the secrets about it.

Q. Are you confusing that incident with Dr. Rosenstein with something that happened some years prior to the time we are talking about?

A. Just from my memory; it is a long time ago.

Q. Well, I know, Mr. Ruddle, it is your memory and not mine. Let me see if I can refresh your recollection. On the occasion that you took your core oil to the Shell Company, was that the first time that you had ever taken any product to the Shell Company in an attempt to interest them in it?

(Testimony of Allan B. Ruddie.)

A. The time I took the core oil to them?

Q. No, any product.

A. Well, I told you—just related that time; that is the only one I remember.

Q. And that is long prior to the time you took your core oil? [213]

A. Well, it was prior; how long prior I wouldn't be able to tell you. I probably could get you the letters on that that would give the date.

Q. I am trying to find out what you told Mr. McSwain when you delivered your solution to him which contained dry mineral oil in it. Did you tell him "This is my secret solution"? or did you tell him "This is my secret solution with some other ingredients added"?

A. I wouldn't recall what I told him at that time.

Q. There is no doubt in your mind, however, that prior to the signing of the contract you did deliver to the Shell Company your so-called secret solution to which you had added a light mineral oil?

A. Yes, that is true.

Q. Did you add that light mineral oil to your so-called secret solution in an endeavor to prevent Shell from learning what the ingredients were in your secret solution?

A. No, but I couldn't tell you what was in the solution now that I took to them. It probably had many things in it besides oil and solution.

Q. Do you remember whether that contained sodium silicate?

(Testimony of Allan B. Ruddle.)

A. I would think that it does; I don't recall just what I took to them at this time, but I do know I took something to them.

Q. Do you recall the time?

A. No, I wouldn't attempt to fix the date.

Q. I am trying to find out, Mr. Ruddle, whether that delivery of this solution with the dry mineral oil to Mr. McSwain as you testified on direct examination was in connection with your Core-Min-Oil or whether it was in connection with something entirely foreign to Core-Min-Oil? Can you answer that for me?

A. Yes; it was in connection with something entirely foreign [214] to Core-Min-Oil.

Q. I want to call your attention to page 54 of your testimony wherein you testified about giving the solution with dry mineral oil in it to the representatives of the Shell Company. Now, I would like to have you tell me whether or not you were there referring to a period of time during which you were negotiating with Shell with respect to your Core-Min-Oil, or whether it was prior thereto. And the particular portion of page 54 that I desire to direct your attention to commences on line 5 and ends at line 21. Have you read your testimony, Mr. Ruddle?

A. Yes. That referred to the early—that was prior to the—that I referred to, that was prior to negotiations for the contract.

Q. And it was prior to the first time that you discussed Core-Min-Oil with Mr. McSwain?

(Testimony of Allan B. Ruddle.)

A. Yes, that is right.

Q. Now, you recall the occasion, do you, that you first disclosed the method of preparing cores with Core-Min-Oil to Mr. Spotswood prior to the making of the contract? I am not asking you for the date; I am asking you, Do you recall the occasion?

A. Yes, I think vaguely.

Q. Can you tell me what Mr. Spotswood said to you at that time?

A. No, I can't.

Q. You can't recall anything that he said?

A. Only generally.

Q. Give us the best of your recollection, please.

A. We talked about making cores. He knew nothing about it; wanted to—As I recall, this was at Martinez, and I showed him—I took up some kind of a little mold, gelatin mold from home up there and we mixed ingredients and made some cores up there at Martinez, as I recall it.

Q. Is that all that you can recall that was said by Mr. [215] Spotswood on that occasion?

A. Well, generally, yes.

Q. Well, particularly, then.

A. Well, that is all I recall at this minute.

Q. Do you recall the occasion when you first disclosed the method of preparing cores with your Core-Min-Oil to Mr. Waller—irrespective of the date, now?

A. I think Mr. Waller was along.

Q. Was that the first time that you had disclosed your formula to Mr. Waller?

A. I don't recall whether I told Mr. Waller in

(Testimony of Allan B. Ruddle.)

Mr. McSwain's office about the formula prior to going to Martinez or not.

Q. Mr. Ruddle, I am not interested in dates at all at this particular time; I am only interested in an occasion, whenever it happened or wherever it happened; and you do recall that at some time you did disclose to Mr. Waller the proportions of Core-Min-Oil that you used in making your cores?

A. Yes, that is right; I do recall that.

Q. That is right.

A. The circumstances about it are vague in my mind.

Q. Now, can you——

A. I can remember that Mr. Waller and Mr. McSwain and Mr. Spotswood were there, and Mr. Ames at the Martinez refinery when I disclosed the secrets of that part of the——

Q. Now, can you tell me anything that Mr. Waller said at the time that you first disclosed to him the method of preparing cores with Core-Min-Oil?

A. No, I can't.

Q. Can you at this time tell me anything that Mr. McSwain said to you on the occasion when you first disclosed to him the formula that you used in making cores with your Core-Min-Oil?

A. No, I can't. [216]

Q. On page 94 of the transcript you have testified that you gave Shell all of the discoveries you had made in connection with the use of asphalt and solution for use in foundries. Will you name all of

(Testimony of Allan B. Ruddle.)

the discoveries that you had made in connection with the use of asphalt and solution for use in foundries and which you disclosed to the Shell Company? I call your attention to the portion of the transcript to which I have referred.

Mr. Hackley: You will note that in the next line the witness limited the question, "for the purpose of making cores," Mr. Aurich. You are including that in your statement, are you?

Mr. Aurich: If the witness has any qualifications to add, he can add them.

Mr. Hackley: You are quoting from the record. I want you to quote accurately.

A. No, I gave them everything that I knew about, how it was used, every proportion that I had tried, everything about it that I knew.

Mr. Aurich: Q. You said that quite a few times, Mr. Ruddle, and I understand very well that that is your position; but I want you to tell me specifically and definitely all of the discoveries that you had made in connection with the use of asphalt and solution for the purpose of making cores or for use in a foundry that you told to the Shell Company and to which you referred on page 94 of the transcript.

A. I haven't any notes left but just a few there. It would be hard for me to enumerate now from memory the things that I told the Shell Oil Company about this.

Q. I am not asking you about things you told them about; I am asking you about what discoveries

(Testimony of Allan B. Ruddie.)

you told Shell. For example, you told them you had discovered a new core oil; is that right? [217]

A. That is right.

Q. What else did you tell them you had discovered?

A. I told them that I had discovered that by the use of asphalt in the core that the core became friable and poured out of the castings.

Q. What else did you tell them that you had discovered?

A. I told them that I had discovered that the time for baking cores was—by using this was a great deal less, about one-third as much as other baking time of other products that were used in foundries.

Q. Perhaps we are talking at cross purposes. I am not asking you to tell the Court what the attributes of your core oil were; I am asking you to name the discoveries you made. You told them you discovered a new core oil. That is one discovery that you made. Did you tell them any other discovery that you had made outside of core oil?

A. You mean drying mineral oil and the like?

Q. As to subject matter; I don't know whether it is dry mineral oil or not, Mr. Ruddie.

A. Well, I worked on many things. Now, I don't know——

Q. What did you have in mind at page 94 of your testimony where you said that you disclosed to Shell all the discoveries that you had made in connection with the use of asphalt and solution for

(Testimony of Allan B. Ruddie.)

the purpose of making cores for use in a foundry?

A. That is the discovery of using this solution together with asphalt.

Q. For the purpose of making cores?

A. Making cores.

Q. That is all you had reference to on page 94 of your testimony?

A. Together with the core wash that was used.

Q. Oh, so you told them also about the core wash; is that right? [218]

A. I don't remember the date that we told them about the core wash. I think that came up at the time the contract was being negotiated, but as to dates I——

Q. I am as much in the dark about this as you are; I am merely trying to straighten out what seems to me, at least, an ambiguous record. You look at the question which your counsel asked you and to which you gave the answer to which I have directed your attention, and tell me what you meant by that answer. Name all the discoveries that you were there referring to (handing transcript to witness).

The Witness: What page was that on?

Mr. Hackley: Starting at the bottom of page 93, line 28, Mr. Ruddie, you will find the question there. The answer appears on the top of the next page.

A. I meant by that everything I knew in connection with that discovery, is what I meant.

Mr. Aurich: Q. By that testimony at page 94 of the record you meant that you had disclosed to

(Testimony of Allan B. Ruddle.)

Shell everything that you had learned in connection with your core oil? A. That is right.

Q. On your direct examination at pages 104 and 105 you have testified that you did not know of any change in the formula that had been made by Shell at all in Core-Min-Oil from late 1937 or early 1938 until the time of the shipment of the core oil to the Axelson Foundry, which we fixed yesterday as being sometime in May or June 1938. What do you mean by "change in formula" at that place in your testimony. And I will show it to you and ask you to read from page 104, line 22 to page 105, line 2. I might help you there by asking you this specific question: Did you mean by "change in formula" a change in the [219] proportions of solution and emulsion to sand, or did you mean a change in making Core-Min-Oil in the ratio of emulsion and solution, or did you mean a change in the formula of your solution?

A. A change in the formula of the solution is what I had in mind.

Q. Is it your testimony, Mr. Ruddle, that prior to 1939 in the month of June you did not know of any change in the formula of your solution that had been made by Shell?

A. Can I have the question again? I don't understand what he wants.

(Question read.)

A. Not that I recall now.

Mr. Aurich: Q. You mean you did not know of any?

(Testimony of Allan B. Ruddle.)

A. Well, I won't say I didn't know, but I don't recall any now.

Q. You said you didn't know of any on pages 104 and 105 of the record.

A. Well, that is my memory, that I didn't know.

Q. Do you recall testifying right in this very case on direct examination that you knew that Mr. Spotswood had been experimenting with changes in your formula, changes in the ratio of asphalt emulsion to solution, changes in the ratio of solution to asphalt emulsion; that he was running up the scale on one side and down the scale on the other?

A. Yes, but——

Mr. Aurich: Q. Can you answer the question, please, Mr. [220] Ruddle?

A. Well, I knew that tests were being run and variations were being tried.

Q. Now, long prior to June 1939 you knew as a matter of fact that the Shell Oil Company had discontinued, generally speaking, their work and attempts to develop a core oil using your secret solution and asphalt emulsion, and had done considerable work and were doing considerable work with straight sodium silicate and asphalt emulsion?

A. I knew they were trying, yes.

Q. You knew that long prior to 1939, didn't you?

A. Yes, I was told that.

Q. And that is a change in your formula, isn't it, Mr. Ruddle?

A. No, that is not; that is another formula.

Q. That is another change of your same formula?

(Testimony of Allan B. Ruddle.)

A. No, but that is another formula; that is not the formula that I gave them.

Q. Did the Kingwell Foundry ever use your Core-Min-Oil in their commercial operations?

A. No, they did not.

Q. Did the Macauley Foundry ever use your Core-Min-Oil in commercial operations?

A. No, sir.

Q. Did the Vulcan Foundry ever use your Core-Min-Oil in commercial operations?

A. They did not.

Q. Did any foundry that you know of ever use your Core-Min-Oil in commercial operations?

A. No, they did not. [221]

Q. Now, I want to direct your attention, if you will, please, to the disclosures of the formula of your solution that you made to the Shell Company. Will you concentrate your mind on that for a few minutes, please?

A. All right.

Q. If I understand the facts correctly, you did not disclose the formula of your secret solution until after the contract in controversy was signed?

A. That is right.

Q. And then you disclosed it to Mr. McSwain?

A. Well, he was one.

Q. Will you give me the formula of the solution that you disclosed to Mr. McSwain?

A. One gallon of water, one ounce of aluminum sulphate, one ounce of sodium fluosilicate, and two gallons of sodium silicate. If I recall, that was the formula I gave him.

(Testimony of Allan B. Ruddie.)

Q. Did you ever disclose a formula for making your so-called secret solution to Mr. McSwain which consisted of one gallon of water, one ounce of aluminum sulphate, one ounce sodium fluosilicate, and one gallon of sodium silicate?

A. Well, it is possible; that is just one of the variations of the formula.

Q. Had you ever done any work with that formula? A. Yes, I had.

Q. What is the resulting Baume degree of a solution made in the proportions that I have given you?

Mr. Hackley: Will you repeat those proportions, please, Mr. Aurich?

Mr. Aurich: I will be glad to. One gallon of water, one ounce of aluminum sulphate, one ounce sodium fluosilicate and one gallon of sodium silicate.

A. Well, I wouldn't be able to tell you offhand, but I think it is 24 Baume, if I recall.

Q. You had done considerable work with that formula?

A. Yes, we were trying to fix a tree spray. [222]

Q. I didn't understand you.

A. A spray to kill mites on trees.

Q. But you never used that formula for making cores?

A. Oh, we tried it and, as I recall, that is what that formula was that I gave to Mr. McSwain at that time.

Q. Why did you give him a formula for spraying trees when he was interested in core oil?

(Testimony of Allan B. Ruddle.)

A. Well, I did, and he sent me to Mr. Gorthy, I think his name was, on the same floor in that building.

Q. Did you ever use the formula I have referred to in making cores?

A. Yes, I have. I have tried all Baumes of that solution.

Q. I would like to get the name of that man whom you have mentioned.

A. I think it was Gorthy, but I wouldn't be sure.

Q. How do you spell that?

A. G-o-r-t-h-y.

Q. What was the result of cores made with Core-Min-Oil when you used the formula I referred to?

A. Well, I think they were lacking in binding strength, as I recall.

The Court: This is the third day of this trial. I suggest to you that you get through with this witness.

Mr. Aurich: Yes, your Honor. I will be through very shortly.

Q. In other words, cores made with the formula I referred to are unsatisfactory?

A. Now, we made cores out of that some were satisfactory, some were not.

Q. Now, you also disclosed your formulas to Mr. Zublin? A. We did.

Q. Do you recall disclosing a formula to him of one gallon of water, one ounce of aluminum sul-

(Testimony of Allan B. Ruddle.)

phate, one ounce sodium fluosilicate, and one gallon of sodium silicate?

A. It is possible that I did.

Q. Did you also disclose to Mr. Zublin another formula consisting of one gallon of water, four ounces of aluminum sulphate, four [223] ounces of sodium fluosilicate, and three gallons of sodium silicate?

A. Yes; I think at the time I gave that to him I was trying to dry mineral oil, and I took Mr. Zublin up to my apartment, and on the stove I dried mineral oil, and Mr. Zublin witnessed it, and gave me an affidavit that it dried. I think that was the occasion for giving that formula.

Redirect Examination

Mr. Hackley: Q. Prior to your work in connection with Core-Min-Oil did you ever have any experience at all in foundry practices of core making? A. None whatever.

Q. Do you consider yourself today to be an expert in core making and foundry practices?

A. Certainly not.

Q. You described certain conferences you had with a Doctor Cleveland of the Philadelphia Quartz Company, at which time he gave you a sample of asphalt emulsion. Was this the only conference or discussion you ever had with Doctor Cleveland during the time of the development of core oil?

A. No, I had been to Doctor Cleveland's place a great many times. He gave me many things to try while I was—he gave me things to try there—I was

(Testimony of Allan B. Ruddle.)

trying to get it in one package at one time, the red oil, the pale oil, and the solution, and he gave me a number of things to try, to get the product in one package. [224]

Q. Are you talking about Core-Min-Oil or some other product?

A. I am talking about—you asked me about my visits to Doctor Cleveland.

Q. Yes. Well, I wondered. You mentioned getting it in one package; is that Core-Min-Oil or is that something else?

A. Well, it was the solution of red oil at the time.

Q. Not Core-Min-Oil?

A. No, not Core-Min-Oil.

Q. Have you any notes relating to your conferences with Doctor Cleveland?

A. Well, I have—I found one last night. I found a note where Doctor Cleveland gave me several things to try, to try to emulsify it.

Q. You found that while you were looking, at Mr. Aurich's request, for notes on core wash?

A. Yes; formula for core covering, core wash.

Q. I show you a notebook which has been identified in your deposition, taken by the defendants here, as Defendants' Exhibit N for identification, and ask you to call attention to any note or notes which you note there relating to your conferences with Doctor Cleveland.

A. I see a note here dated June 1, 1937: "Chemicals used to emulsify solution with mineral oil to

(Testimony of Allan B. Ruddie.)

make a complete emulsion." And then it enumerates some seven or eight: "Sodium oleate, calcium magnesia, resin soap, gum arabic, gelatine, eggs, also interamine sold by L. H. Butcher."

Q. Did you note the date of that entry for the record? A. Yes; June 1, 1937.

Q. Is that the date when the entry was made?

A. Yes, that would be on that date.

Q. This is in your handwriting?

A. That is right.

Q. It is page 297 of your notebook, Defendants' Exhibit N for identification, is that correct?

A. That is right. [225]

Q. You testified in the course of your examination here that at the time you took Core-Min-Oil to the Shell Oil Company late in 1937 or early in 1938 you were troubled by inconsistent results in the cores, and that Mr. Spotswood of the Shell Company determined that that inconsistency grew out of the gases generated in combustion in direct fire ovens, if I understood you, is that correct?

A. That is right.

Q. And I believe you testified that he worked that out sometime in January or February, 1938, is that correct?

A. As I recall, that is about the date.

Q. After Mr. Spotswood made this determination, was there any problem remaining with reference to Core-Min-Oil arising out of this inconsistent core subject that you have described?

A. No, that was the principal problem which confronted us at that time.

(Testimony of Allan B. Ruddle.)

Q. Did Mr. Spotswood's determination solve that problem?

A. Well, it solved it in this way: that if we used an electric oven, or indirect fire oven, or hooded the cores we had in the oven, then the problem was solved.

Q. In other words, if I understand you, as long as you kept the gases of combustion away from the baking cores, you had no problem with those gases, is that correct? A. That is right.

Q. What type of cores resulted from the baking process of the Core-Min-Oil cores in direct fire ovens, or from the hooded core, or otherwise, where the gases were prevented from coming in contact with the core in baking?

A. The cores were pronounced good by the foundry people who examined them.

Q. Did you observe them yourself?

A. Yes, I looked at them.

Q. Were they consistently good, inconsistent, or what?

A. Every one that I ever saw baked that way was good. [226]

Q. Were any of those cores used to make castings? A. Yes, many of them.

Q. Will you state what you observed with reference to the castings?

A. As far as I could tell, they were perfect castings.

Q. What type of surface was on the casting?

A. They were very smooth.

(Testimony of Allan B. Ruddie.)

Q. How did the surface of those castings compare, for example, with the sample that was presented by the defendants here?

A. I will say this does not look like it at all; this is a very rough casting.

Q. Not at all like the casting that was obtained?

A. No; they wouldn't sell that casting at any of the foundries I was in.

Q. Were any of the castings made with Core-Min-Oil sold by any of those foundries?

A. Yes, nearly everything we poured was sold. They would take one of their core boxes they were working on, make a casting with this material, and it would go right in with the other lot and be sold.

Q. Was that true of the casting of the Union Diesel head?

A. Yes, because I followed it up to see what happened to it; wanted to show it again, and they told me it had been sold.

Q. Sold in the regular course of business?

A. That is right.

Q. There were some discussions by you in your cross examination of contacts with the American Brake Shoe & Foundry Company. On how many independent occasions, with reference to separation of time [227] rather than separate visits, did you have any experience with the American Brake Shoe Company?

A. Well, I remember that they came to our office, Mr. Peck's office in the Crocker Building, at one time.

(Testimony of Allan B. Ruddle.)

Q. This was before or after making of the contract?

A. This was before making the contract with the Shell Company. And we went over to their office—I think, if I remember right, their office was in the Russ Building—and we went there on several occasions.

Q. Do you have any means of fixing the date at which you dealt with the American Brake Shoe people on the first occasion?

A. We wrote them a letter.

Q. Have you located a copy of that letter?

A. Yes, I have.

Q. Is that the letter that you have reference to, Mr. Ruddle (handing document to witness)?

A. Yes; that is February 24, 1938.

Q. Does that refresh your recollection as to the date on which you were contacting the American Brake Shoe & Foundry Company on the first occasion?

A. Yes; I would say that we had been to see them several times when that letter was written.

Q. Do you recall this letter at the time it was written, the original of this letter?

A. No, I do not.

Q. Did you write it? A. No, I did not.

Q. You had nothing to do with it yourself?

A. No.

Q. Did you see it about that time?

A. Yes, I did—no doubt I did. I don't recall now.

(Testimony of Allan B. Ruddle.)

Q. You have no specific recollection?

A. No, I have not.

Mr. Hackley: I offer as Plaintiff's Exhibit No. 28 for identification the letter mentioned by the witness in his testimony.

(The letter referred to was marked Plaintiff's Exhibit No. 28 [228] for identification.)

Mr. Hackley: Q. Then do I understand from your testimony at a somewhat later date you had some further reference to the American Brake Shoe & Foundry Co. in your work?

A. Do you mean—Lydell Peck reported to me that they wanted——

Q. I believe you testified along that line yesterday, and if I understood you, this was a second occasion at a considerably later date, is that right?

A. Yes, that is right.

Q. And was fixed at the time related to Mr. Spiri in some way?

A. Yes. I went to Mr. McSwain—Lydell Peck told me—I think he told me Dave Wack——

Mr. Hackley: Q. Just tell us what you said to Mr. McSwain, Mr. Ruddle.

A. I told him that the American Brake Shoe Company had asked about this solution. I turned the inquiry over to Mr. McSwain and he said, "I had better tell Mr. Spiri about it." So we called on Mr. Spiri. He had an office in the same building. I told Mr. Spiri about it and he said he would go and see them.

Q. What was the approximate date of that?

(Testimony of Allan B. Ruddle.)₁

A. Well, it was during the time Mr. Spiri was working on this. It was very late—about two months, I should say, or three months before the contract was—we had a letter from Mr. McLaren. That would be next as to time.

Q. It was some time after the exercise of the option and before Mr. McLaren's letter attempting to cancel, is that correct?

A. Yes, that is right.

Q. You testified yesterday that you had made a comparison of the baking time of Union Diesel head cores made with Core-Min-Oil and made with Houghton Oil. Did you ever make any checks of baking [229] time, comparisons with other cores, that is, comparisons of cores made with Core-Min-Oil and cores made with other oils?

A. Yes; I think we had Quandt Oil and linseed oil, too, at the Macauley Foundry.

Q. What type of cores were tested and checked as to time?

A. Well, all sizes; that is, I think the largest core I ever made out of Core-Min-Oil was that Diesel head.

Q. Have you any notes or records at this time that you could produce relating to these checks on time?

A. I think I ran into, among my notebooks last night—that little book, I think, refers to it.

Q. Which one of these notebooks do you want?

A. I think it is this one (indicating). The note-

(Testimony of Allan B. Ruddie.)

book refers to the formula that I referred to this morning.

Q. What notebook have you in your hand? Let me check that, will you, please? You are looking at some notes in Defendants' Exhibit O for identification, in connection with your deposition taken by the defendants, is that right?

A. That is right.

Q. Will you call attention to the notes that you are referring to there, and we will find a reference to the page in some way?

A. Well, it gives the formula on the first page.

Q. Just read what you have there.

A. Seven gallons of sand, 1750 cc's of sand, solution of 125, and No. 2 A.P. emulsion 40 cc's, and water 65 cc's.

Q. Is the baking time there?

A. The baking time shows it was put in the oven 10:48, came out 11:03, 15 minutes for a pump runner. And then we made another the same with 1 B. That core was not made. And then a No. 2 emulsion, 16 minutes. No. 1—

The Court: Q. Where were these cores dried?

A. Dried in Macauley's Foundry. [230]

Q. What kind of furnace?

A. This was an open furnace at that time.

Q. Isn't it conceded that these cores cannot be dried in an open furnace?

A. Well, we couldn't tell. We put two in the same time, just alike, made just alike—

(Testimony of Allan B. Ruddle.)

The Court: We are here trying to determine the time it takes to dry the cores when it is conceded the ovens will not dry them properly. What are we spelling out of this thing?

Mr. Hackley: Q. Can you explain that to the Court, Mr. Ruddle?

The Court: Nobody can explain it, unless I have a wrong state of mind, being an old metalist.

Mr. Hackley: Q. That is correct, isn't it, Mr. Ruddle? A. Yes, that is correct.

Q. You did have occasions when your cores failed in direct fire ovens, and occasions when you were successful?

A. Yes; that happened all the time.

The Court: It is conceded, as far as the testimony here goes, that the only way you can dry these and do it successfully is do it with an electric oven, is that correct?

Mr. Aurich: That is quite correct.

The Court: There is no indirect fired oven here, is there, aside from the electric heat?

Mr. Hackley: Q. Mr. Ruddle, what do you mean by "indirect fire oven"?

A. That is where the gases from the fire can't get in contact with the core.

Q. What type of oven would that be? How would it be constructed?

A. Well, it would be lined with some material that would keep the gases away from the cores.

Q. You said yesterday, I believe, tin or some shield. [231]

(Testimony of Allan B. Ruddle.)

A. Yes; even a hood over it would keep them away, makes them successful.

The Court: But that type of furnace is not here.

Mr. Hackley: That is not in the Macauley Foundry.

The Court: Or anywhere else here; that is, so far as the testimony is concerned.

Mr. Hackley: Q. Mr. Ruddle, are you acquainted with the location of all types of ovens?

A. No.

Q. You merely know of the existence of different types? A. That is all, yes.

Q. You know that there are electric ovens?

A. Yes.

Q. And there are indirect fire ovens?

A. That is right.

Q. You have demonstrated that the cores could be made by hooding the cores, is that correct?

A. Yes, we did that.

Q. Now, one thing here: You called attention to the fact that in these notes, Exhibit O for identification, you found a reference to a specific formula. A. Yes.

Q. Will you call attention to which page of the notes that is by counting the pages? I will tell you: Mark the page with the letter "A". So that we get that identified, just read the text of that formula into the record, please.

A. "Made sample x. 1750 cc's sand, dry, 125 cc's solution, 40 cc's A. P. asphalt emulsion, 65 cc's of water, bake 15 minutes, made pump runner sam-

(Testimony of Allan B. Ruddie.)

ple, marked A. P., and core was marked X. This was covered with plumbago. Another one marked 1, covered with R. P. coating. They were poured with solid casting, with sample of Houghton Oil." That sample means a sample was run alongside of it.

Q. A sample was run in comparison?

A. Yes, that is right. "Two cores, one marked B, other AP, of pump runners, were poured 11/3/37, and two marked X, and 1, were poured 11/2/37." And there [232] is a notation on the bottom, "O.K."

Q. Are these notes in your handwriting?

A. They are.

Q. What does "O.K." at the bottom mean?

A. It means they were good castings.

Q. Will you mark the second page you read from there at "B," please?

A. (Witness marks on document.)

Q. These are your original notes, are they, kept in your handwriting, Mr. Ruddie?

A. Yes, they are.

Mr. Hackley: I offer as Plaintiffs' Exhibit 29 the page of notes identified by the witness, which are contained in Defendants' Exhibit O.

(The pages of notes referred to were marked Plaintiffs' Exhibit No. 29.)

Mr. Hackley: Q. Did you have any discussions with any representative of the Shell Oil Company prior to the making of the contract, Exhibit 5, about the fact that cores made with Core-Min-Oil

(Testimony of Allan B. Ruddle.)

could be baked only in electric ovens, indirect fired ovens, or if the cores were hooded?

A. Prior to making the contract?

Q. Yes. A. Yes, I think so.

Q. With whom? A. With Mr. McSwain.

Q. Can you tell us when any particular one of those discussions occurred, or the period in which they occurred, and tell us just what was said on both sides?

A. They had many discussions regarding fixing up the present ovens so that cores could be fixed in it. [233]

Mr. Hackley: Q. I will ask you, Mr. Ruddle, when this occurred, now, with reference to the time.

A. Well, I would say it started after Mr. Waller and Spotswood determined that the CO₂ gas hurt the core. Then there was a discussion about getting the foundries to fix their ovens, and I know in that connection Mr. McSwain said to me——

Mr. Aurich: I still haven't got the——

The Court: Q. That was after the contract was signed, was it?

A. Well, I think even prior to the contract being signed we were discussing that.

Mr. Hackley: Q. Mr. Ruddle, you fix one date of it as being prior—just after, or after Mr. Spotswood made the discovery of the CO₂, and if I remember your testimony, you correct me if I am wrong, you testified that that was in January or February, 1938, is that correct?

(Testimony of Allan B. Ruddle.)

A. That is right.

Q. So these conversations you are talking about are after that date. Now, is it before or after the signing of the contract on April 8, 1938?

A. Well, I wouldn't attempt to fix the time. We had so many conversations.

Q. Did you have any discussions prior to the signing of the contract with Mr. McSwain or with anybody else representing Shell, regarding the fact that the Core-Min-Oil cores could not be baked [234] in direct fire ovens where the gas combustion came in contact with the cores?

A. Oh, yes; that was prior to the signing of the contract.

Q. Just tell us about those discussions. What was said and what took place?

(To Mr. Aurich) Does that fix the time, Mr. Aurich?

Mr. Aurich: That fixes it satisfactorily for my point.

Mr. Hackley: You understand that this is fixed between the end of February, 1938, and the making of the contract in April.

Mr. Aurich: Yes, I understand.

A. Mr. McSwain said we would have to educate the foundries to see the value in this, the great saving in the making of castings, and that they would call upon the foundries and get them to fix their ovens. As he said, there were many foundries in the United States, McSwain did, that were electrically heated, and he would go into one district—

(Testimony of Allan B. Ruddie.)

he said that the way to do that would be to go into a district and get one foundry there to fix its ovens and adopt this, and that would cause the other foundries to follow suit because of the great saving in the manufacture of castings.

Mr. Hackley: Q. Did Mr. McSwain state to you that he recognized—now, this is before the contract was signed in fact—Core-Min-Oil cores could not be made in direct fire ovens where the gases of combustion come in contact with the cores?

A. Yes, that is right.

Q. And the Shell Oil Company entered into the contract nevertheless?

A. Oh, yes, that was—

Mr. Hackley: Mr. Aurich, you indicated you would like to interrupt here to bring in the additional material you now have.

Mr. Aurich: If it please the Court, counsel has agreed that we interrupt— [235]

The Court: I want him to get through. Here is a witness who was called Tuesday morning. It would be interesting, indeed, to read the whole record. It would be mighty interesting.

Mr. Hackley: Q. Will you state whether or not the moisture content of the sand used in making the cores has any influence on the baking time of cores made with Core-Min-Oil?

A. Yes; the more moisture there is in the sand, the longer time it takes to bake the cores.

Q. I believe you testified yesterday that you had developed formulas, but that you could not remem-

(Testimony of Allan B. Ruddle.)

ber precisely what they were after this time, for use with wet sand, is that correct?

A. Oh, yes, I tried wet sand, but I don't recall now what formula was used with wet sand.

Q. Were you able to make successful cores with wet sand with your formula?

A. Oh, yes; it just takes longer to bake them, is all.

Q. Is the formula which was given to you yesterday, and which you read from your notebook this morning, Exhibit N, and offered as Plaintiff's Exhibit 29, a formula for a dry sand core or a wet sand core?

A. That was for a dry sand.

Q. That is the same formula that is shown in your patent, Exhibit 1, is that correct?

A. That is right.

Q. Is it there directed to a dry sand core or a wet sand core?

A. To a dry sand.

The Court: Q. Dry sand, and you put water in it?

A. That is right.

Q. Why do you use dry sand?

A. Well, if you could determine the amount of moisture that is in the sand, then you would not need to put any water in it, but these were tests, and to be accurate about it, we added everything to dry sand so that we could have the check [236]

Mr. Hackley: Q. You started with a zero moisture content?

A. That was the reason for doing it that way.

Q. Do I understand the amount of moisture is one of compensation, so that you will have less

(Testimony of Allan B. Ruddle.)

moisture in the Core-Min-Oil if there is moisture in the sand? A. That is right.

Q. You have described the fact that the baking time of cores made with dry sand was generally about one-third of the baking time of like cores made with linseed oil. Have you ever made any tests to determine the comparative drying time of Core-Min-Oil cores made with wet sand in contrast with linseed oil cores? A. Yes, I have.

Q. Do you remember what the results of those tests were?

A. They were just longer, but I haven't any records now to show.

Q. With reference to the baking time of linseed oil cores made with wet sand, do Core-Min-Oil cores take a longer or a shorter length of time?

A. Oh, a great deal less than linseed.

Q. But, if I understand you right, more than dry sand cores?

A. Yes, just a little more than the dry sand.

Q. Depending directly on the amount of moisture present, is that is? A. That is right.

Q. Speaking of your solution, Mr. Ruddle, did you ever give the formula of that solution to anyone other than the representatives of Shell prior to the issuance of your patents, Exhibits 1 and 2?

A. No, I did not.

Q. You were referred yesterday to the Thomas patent, No. 1,561,956. A copy of it was offered in evidence by the defendants. Have you any records

(Testimony of Allan B. Ruddie.)

indicating when you first learned of the existence of the Thomas patent?

A. Yes; I notice in the file there a [237] copy of a letter.

Q. I show you a letter directed to you from my office, dated March 15, 1938, annexed to which is a copy of the Patent Office action of January 27, 1938, and ask if that refreshes your recollection as to when you first heard of the 'Thomas patent?

A. Yes, that is March 15, 1938.

Q. You received a copy of the patent with that letter, copy of the action annexed to the letter, at that time, did you? A. Yes, that is right.

Q. Within a few days, at least, of March 15, 1938? A. That is right.

Mr. Hackley: I offer as Plaintiffs' Exhibit No. 30 the letter identified by the witness, and as Plaintiff's Exhibit 31, the Office action annexed thereto, in which is mentioned the Thomas patent.

(The letter referred to was marked Plaintiffs' Exhibit No. 30 in evidence.)

(The Patent Office action referred to was marked Plaintiffs' Exhibit No. 31 in evidence.)

